



**Caltrans**

**STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION**

**NOTICE TO BIDDERS  
AND  
SPECIAL PROVISIONS**

**FOR CONSTRUCTION ON STATE HIGHWAY IN SACRAMENTO COUNTY IN  
SACRAMENTO AT CAMELLIA CITY VIADUCT FROM 0.3 MILE EAST OF  
RIVERSIDE BOULEVARD UNDERCROSSING TO 26TH STREET**

**UNDERCROSSING**

**In District 03 On Route 50**

**Under**

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***Bid book dated May 13, 2013***

***Standard Specifications dated 2010***

***Project plans approved March 25, 2013***

***Standard Plans dated 2010***

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**Identified by**

**Contract No. 03-0F2304**

**03-Sac-50-L1.3/L2.2**

**Project ID 0300000073**

**Federal-Aid Project**

**ACBHNH-P050(132)E**

**Electronic Advertising Contract**

**Bids open Wednesday, June 26, 2013**

**Dated May 13, 2013**

**OSD**

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# SPECIAL NOTICES

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- For federal-aid projects, the Department is modifying its DBE program.

## CONTRACT NO. 03-OF2304

The special provisions contained herein have been prepared by or under the direction of the following Registered Person.

### HIGHWAYS

Brenda Robson  
REGISTERED CIVIL ENGINEER



### STRUCTURES

Mary E. Kopsa 3/22/13  
REGISTERED CIVIL ENGINEER



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# STANDARD PLANS LIST

The standard plan sheets applicable to this Contract include those listed below. The applicable revised standard plans (RSPs) listed below are included in the project plans.

A10A	Abbreviations (Sheet 1 of 2)
A10B	Abbreviations (Sheet 2 of 2)
A10C	Lines and Symbols (Sheet 1 of 3)
A10D	Lines and Symbols (Sheet 2 of 3)
A10E	Lines and Symbols (Sheet 3 of 3)
A10F	Legend - Soil (Sheet 1 of 2)
A10G	Legend - Soil (Sheet 2 of 2)
A10H	Legend - Rock
A20A	Pavement Markers and Traffic Lines, Typical Details
A20B	Pavement Markers and Traffic Lines, Typical Details
A20C	Pavement Markers and Traffic Lines, Typical Details
A20D	Pavement Markers and Traffic Lines, Typical Details
RSP A24A	Pavement Markings - Arrows
A24D	Pavement Markings - Words
RSP A24E	Pavement Markings - Words, Limit and Yield Lines
A62A	Excavation and Backfill - Miscellaneous Details
A73A	Object Markers
A73B	Markers
A73C	Delineators, Channelizers and Barricades
A76A	Concrete Barrier Type 60
A76B	Concrete Barrier Type 60
A77A1	Metal Beam Guard Railing - Standard Railing Section (Wood Post with Wood Block)
A77B1	Metal Beam Guard Railing - Standard Hardware
A77C1	Metal Beam Guard Railing - Wood Post and Wood Block Details
A77C4	Metal Beam Guard Railing - Typical Railing Delineation and Dike Positioning Details
A77F2	Metal Beam Guard Railing - Typical Layouts for Structure Approach and Between Structures
A77I2	Metal Beam Guard Railing - Buried Post End Anchor
A77J1	Metal Beam Guard Railing - Connections to Bridge Railings without Sidewalks Details No. 1
A77J2	Metal Beam Guard Railing - Connections to Bridge Railings without Sidewalks Details No. 2
A77J4	Metal Beam Guard Railing - Transition Railing (Type WB)

A85	Chain Link Fence
A85A	Chain Link Fence Details
RSP A85B	Chain Link Fence Details
A87A	Curbs and Driveways
A87B	Hot Mix Asphalt Dikes
P1	Jointed Plain Concrete Pavement
P2	Jointed Plain Concrete Pavement - Widened Slab Details
RSP P8	Jointed Plain Concrete Pavement - Individual Slab Replacement
RSP P18	Concrete Pavement - Lane Schematics and Isolation Joint Detail
P20	Concrete Pavement - Joint Details
RSP P30	Concrete Pavement - End Panel Pavement Transitions
P35	Concrete Pavement - Ramp Transition Paving Details
D77C	Alternative Hinged Cover for Type OL and OS Inlets and Trash Rack for Type OCP Inlet
T1A	Temporary Crash Cushion, Sand Filled (Unidirectional)
T1B	Temporary Crash Cushion, Sand Filled (Bidirectional)
T2	Temporary Crash Cushion, Sand Filled (Shoulder Installations)
T3A	Temporary Railing (Type K)
T3B	Temporary Railing (Type K)
T4	Temporary Traffic Screen
T59	Temporary Water Pollution Control Details (Temporary Concrete Washout Facility)
T61	Temporary Water Pollution Control Details (Temporary Drainage Inlet Protection)
T62	Temporary Water Pollution Control Details (Temporary Drainage Inlet Protection)
T63	Temporary Water Pollution Control Details (Temporary Drainage Inlet Protection)
T64	Temporary Water Pollution Control Details (Temporary Drainage Inlet Protection)
B6-21	Joint Seals (Maximum Movement Rating = 2")
B7-1	Box Girder Details
B11-52	Chain Link Railing Type 7
B11-55	Concrete Barrier Type 732
B14-3	Communication and Sprinkler Control Conduits (Conduit Less Than 4")
RS1	Roadside Signs, Typical Installation Details No. 1
RS2	Roadside Signs - Wood Post, Typical Installation Details No. 2
RS4	Roadside Signs, Typical Installation Details No. 4
S1	Overhead Signs - Truss, Instructions and Examples
S2	Overhead Signs - Truss, Single Post Type - Post Types II thru IX



S3	Overhead Signs - Truss, Single Post Type - Base Plate and Anchorage Details
S4	Overhead Signs - Truss, Single Post Type - Structural Frame Members Details No. 1
S5	Overhead Signs - Truss, Single Post Type - Structural Frame Members Details No. 2
S6	Overhead Signs - Truss, Gusset Plate Details
S9	Overhead Signs - Truss, Two Post Type - Post Types I-S thru VII-S
S10	Overhead Signs - Truss, Two Post Type - Base Plate and Anchorage Details
S11	Overhead Signs - Truss, Two Post Type - Structural Frame Members
S12	Overhead Signs - Truss, Structural Frame Details
S13	Overhead Signs - Truss, Frame Juncture Details
S16	Overhead Signs - Walkway Details No. 1
S17	Overhead Signs - Walkway Details No. 2
S17A	Overhead Signs - Walkway Details No. 3
S18	Overhead Signs - Walkway Safety Railing Details
S19	Overhead Signs - Truss, Sign Mounting Details - Laminated Panel - Type A
S81	Overhead Laminated Sign - Single or Multiple Panel, Type A (1" Thick)
S85	Seam Closure, "H" Section Extrusion and Post Spacing Tables, Multi-Horizontal Laminated Panel Aluminum Signs
S86	Laminated Panel Details - Extrusions for Type A, B and H Panels
S87	Type A-1 Mounting Hardware - Overhead Laminated Type A Panel, Truss and Lightweight Sign Structures
S93	Framing Details for Framed Single Sheet Aluminum Signs, Rectangular Shape
S94	Roadside Framed Single Sheet Aluminum Signs, Rectangular Shape
S95	Roadside Single Sheet Aluminum Signs, Diamond Shape
ES-1A	Electrical Systems (Legend, Notes and Abbreviations)
ES-1B	Electrical Systems (Legend, Notes and Abbreviations)
ES-1C	Electrical Systems (Legend, Notes and Abbreviations)
ES-2A	Electrical Systems (Service Equipment)
ES-2C	Electrical Systems (Service Equipment Notes, Type III Series)
ES-2D	Electrical Systems (Service Equipment Enclosure and Typical Wiring Diagram, Type III - A Series)
ES-5A	Electrical Systems (Detectors)
ES-5B	Electrical Systems (Detectors)
ES-5D	Electrical Systems (Curb Termination and Handhole)
ES-6A	Electrical Systems (Lighting Standard, Types 15 and 21)
ES-6B	Electrical Systems (Electrolier Anchorage and Grouting for Types 15 and 21, Barrier Rail Mounted)
ES-7O	Electrical Systems (Signal and Lighting Standard - Detail No. 3)
RSP ES-8A	Electrical Systems (Pull Box)

ES-9A	Electrical Systems (Structure Pull Box Installations)
ES-9B	Electrical Systems (Conduit Riser and Expansion Fitting, Structure Installations)
ES-9C	Electrical Systems (Structure Pull Box)
ES-9D	Electrical Systems (Structure Pull Box Installations)
ES-9E	Electrical Systems (Flush Soffit, Pendant soffit and Wall Luminaire, Structure Installations)
ES-9F	Electrical Systems (Flush Soffit Luminaire Details)
RSP ES-10A	Electrical Systems (Isofootcandle Diagrams)
RSP ES-10B	Electrical Systems (Isofootcandle Diagrams)
ES-11	Electrical Systems (Foundation Installations)
ES-13A	Electrical Systems (Splicing Details)
ES-13B	Electrical Systems (Fuse Rating, Kinking and Banding Detail)
ES-15A	Electrical Systems (Sign Illumination Equipment)
ES-15C	Electrical Systems (Sign Illumination Equipment)
ES-15D	Electrical Systems (Lighting and Sign Illumination Control)
ES-16A	Electrical Systems (Closed Circuit Television, 5' to 15' Overhead Sign Mounted Pole)

## **CANCELED STANDARD PLANS LIST**

The standard plan sheets listed below are canceled and not applicable to this contract.

B3-1	Canceled on April 20, 2012
B3-2	Canceled on April 20, 2012
B3-3	Canceled on April 20, 2012
B3-4	Canceled on April 20, 2012
B3-7	Canceled on April 20, 2012
B3-8	Canceled on April 20, 2012
ES-8	Canceled on January 20, 2012
ES-10	Canceled on July 20, 2012

# NOTICE TO BIDDERS

Bids open Wednesday, June 26, 2013

Dated May 13, 2013

General work description: Bridge Widening, PCC Overlay and Replace Concrete Barrier.

The Department will receive sealed bids for CONSTRUCTION ON STATE HIGHWAY IN SACRAMENTO COUNTY IN SACRAMENTO AT CAMELLIA CITY VIADUCT FROM 0.3 MILE EAST OF RIVERSIDE BOULEVARD UNDERCROSSING TO 26TH STREET UNDERCROSSING.

District-County-Route-Post Mile: 03-Sac-50-L1.3/L2.2

Contract No. 03-0F2304

The Contractor must have either a Class A license or a combination of Class C licenses which constitutes a majority of the work.

The DBE Contract goal is 3 percent.

Federal-aid project no.:

ACBHNH-P050(132)E

For the Federal training program, the number of trainees or apprentices is 7.

Bids must be on a unit price basis.

Complete the work within 185 working days.

The estimated cost of the project is \$21,000,000.

No prebid meeting is scheduled for this project.

The Department will receive bids until 2:00 p.m. on the bid open date at 1727 30th Street, Bidders' Exchange, MS 26, Sacramento, CA 95816. Bids received after this time will not be accepted. Department staff will direct the bidders to the bid opening.

The Department will open and publicly read the bids at the above location immediately after the specified closing time.

District office addresses are provided in the *Standard Specifications*.

Present bidders' inquiries to the Department and view the Department's responses at:

[http://www.dot.ca.gov/hq/esc/oe/project\\_status/bid\\_inq.html](http://www.dot.ca.gov/hq/esc/oe/project_status/bid_inq.html)

Questions about alleged patent ambiguity of the plans, specifications, or estimate must be asked before bid opening. After bid opening, the Department does not consider these questions as bid protests.

Submit your bid with bidder's security equal to at least 10 percent of the bid.

Prevailing wages are required on this Contract. The Director of the California Department of Industrial Relations determines the general prevailing wage rates. Obtain the wage rates at the DIR Web site, <http://www.dir.ca.gov>, or from the Department's Labor Compliance Office of the district in which the work is located.

The federal minimum wage rates for this Contract as determined by the United States Secretary of Labor are available at <http://www.dot.ca.gov/hq/esc/oe/federal-wages>.

If the minimum wage rates as determined by the United States Secretary of Labor differs from the general prevailing wage rates determined by the Director of the California Department of Industrial Relations for

similar classifications of labor, the Contractor and subcontractors must not pay less than the higher wage rate. The Department does not accept lower State wage rates not specifically included in the federal minimum wage determinations. This includes helper, or other classifications based on hours of experience, or any other classification not appearing in the federal wage determinations. Where federal wage determinations do not contain the State wage rate determination otherwise available for use by the Contractor and subcontractors, the Contractor and subcontractors must not pay less than the federal minimum wage rate that most closely approximates the duties of the employees in question.

The Department has made available Notices of Suspension and Proposed Debarment from the Federal Highway Administration. For a copy of the notices, go to [http://www.dot.ca.gov/hq/esc/oe/contractor\\_info](http://www.dot.ca.gov/hq/esc/oe/contractor_info). Additional information is provided in the Excluded Parties List System at <https://www.epls.gov>.

Department of Transportation

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## BID ITEM LIST

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
1	070030	LEAD COMPLIANCE PLAN	LS	LUMP SUM
2	080050	PROGRESS SCHEDULE (CRITICAL PATH METHOD)	LS	LUMP SUM
3	090105	TIME-RELATED OVERHEAD (LS)	LS	LUMP SUM
4	120090	CONSTRUCTION AREA SIGNS	LS	LUMP SUM
5	120100	TRAFFIC CONTROL SYSTEM	LS	LUMP SUM
6	120120	TYPE III BARRICADE	EA	28
7	120149	TEMPORARY PAVEMENT MARKING (PAINT)	SQFT	15
8	120165	CHANNELIZER (SURFACE MOUNTED)	EA	86
9	120199	TRAFFIC PLASTIC DRUM	EA	290
10	120300	TEMPORARY PAVEMENT MARKER	EA	5,900
11	128651	PORTABLE CHANGEABLE MESSAGE SIGN (EA)	EA	48
12	129000	TEMPORARY RAILING (TYPE K)	LF	11,860
13	025578	TEMPORARY CRASH CUSHION (ABSORB 350)	EA	2
14	129150	TEMPORARY TRAFFIC SCREEN	LF	11,620
15	130100	JOB SITE MANAGEMENT	LS	LUMP SUM
16	130200	PREPARE WATER POLLUTION CONTROL PROGRAM	LS	LUMP SUM
17	130620	TEMPORARY DRAINAGE INLET PROTECTION	EA	110
18	130900	TEMPORARY CONCRETE WASHOUT	LS	LUMP SUM
19	140003	ASBESTOS COMPLIANCE PLAN	LS	LUMP SUM
20	141103	REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE (HAZARDOUS WASTE)	LF	9,420

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
21	141120	TREATED WOOD WASTE	LB	1,200
22	150190	INJECT CRACK (EPOXY)	LF	50
23	150202	CORE AND PRESSURE GROUT DOWEL	LF	28
24	150312	REPAIR SPALLED SURFACE AREA	SQFT	80
25	150608	REMOVE CHAIN LINK FENCE	LF	900
26	150712	REMOVE PAINTED PAVEMENT MARKING	SQFT	15
27	150714	REMOVE THERMOPLASTIC TRAFFIC STRIPE	LF	8,270
28	150715	REMOVE THERMOPLASTIC PAVEMENT MARKING	SQFT	390
29	150742	REMOVE ROADSIDE SIGN	EA	13
30	150757	REMOVE SIGN STRUCTURE (EA)	EA	4
31	150771	REMOVE ASPHALT CONCRETE DIKE	LF	100
32	151270	SALVAGE METAL BRIDGE RAILING	LF	10,950
33	151531	RECONSTRUCT FENCE	LF	800
34	025579	RECONSTRUCT WOODEN BUMPER	LF	1,120
35	151572	RECONSTRUCT METAL BEAM GUARD RAILING	LF	50
36	153103	COLD PLANE ASPHALT CONCRETE PAVEMENT	SQYD	2,810
37	153130	REMOVE CONCRETE CURB (LF)	LF	970
38	153221	REMOVE CONCRETE BARRIER	LF	880
39	153225	PREPARE CONCRETE BRIDGE DECK SURFACE	SQFT	489,000
40	156585	REMOVE CRASH CUSHION	EA	1

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
41	157560	BRIDGE REMOVAL (PORTION)	LS	LUMP SUM
42	190101	ROADWAY EXCAVATION	CY	110
43	260203	CLASS 2 AGGREGATE BASE (CY)	CY	370
44	390132	HOT MIX ASPHALT (TYPE A)	TON	490
45	394076	PLACE HOT MIX ASPHALT DIKE (TYPE E)	LF	70
46	394090	PLACE HOT MIX ASPHALT (MISCELLANEOUS AREA)	SQYD	350
47	397005	TACK COAT	TON	1.6
48	411105	INDIVIDUAL SLAB REPLACEMENT (RSC)	CY	680
49 (F)	510053	STRUCTURAL CONCRETE, BRIDGE	CY	150
50 (F)	044270	STRUCTURAL CONCRETE, BRIDGE (MODIFIED)	CY	850
51 (F)	044271	STRUCTURAL CONCRETE, FIBER-REINFORCED PCC OVERLAY	CY	6,260
52	510081	AGGREGATE BASE (APPROACH SLAB)	CY	36
53	510087	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE R)	CY	370
54 (F)	510502	MINOR CONCRETE (MINOR STRUCTURE)	CY	2.1
55	510800	PAVING NOTCH EXTENSION	CF	200
56	511106	DRILL AND BOND DOWEL	LF	49,700
57	511110	DRILL AND BOND DOWEL (CHEMICAL ADHESIVE)	EA	12,390
58	511118	CLEAN EXPANSION JOINT	LF	2,096
59	519081	JOINT SEAL (MR 1/2")	LF	441
60	519100	JOINT SEAL (MR 2")	LF	1,606

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
61	519102	JOINT SEAL (TYPE AL)	LF	49
62 (F)	520102	BAR REINFORCING STEEL (BRIDGE)	LB	2,080,000
63 (F)	520120	HEADED BAR REINFORCEMENT	EA	100
64 (F)	540101	ASPHALT MEMBRANE WATERPROOFING	SQFT	150
65 (F)	550110	COLUMN CASING	LB	810,000
66 (F)	560218	FURNISH SIGN STRUCTURE (TRUSS)	LB	93,345
67 (F)	560219	INSTALL SIGN STRUCTURE (TRUSS)	LB	93,345
68	560244	FURNISH LAMINATED PANEL SIGN (1"-TYPE A)	SQFT	1,440
69	560249	FURNISH SINGLE SHEET ALUMINUM SIGN (0.080"-UNFRAMED)	SQFT	270
70	566011	ROADSIDE SIGN - ONE POST	EA	2
71	025580	ROADSIDE SIGN (BRIDGE RAIL MOUNTED)	LB	3,260
72	568001	INSTALL SIGN (STRAP AND SADDLE BRACKET METHOD)	EA	2
73	703509	6" WELDED STEEL PIPE (.134" THICK)	LF	11
74	730020	MINOR CONCRETE (CURB) (CY)	CY	12
75	731502	MINOR CONCRETE (MISCELLANEOUS CONSTRUCTION)	CY	3
76	731504	MINOR CONCRETE (CURB AND GUTTER)	CY	13
77 (F)	750001	MISCELLANEOUS IRON AND STEEL	LB	175
78 (F)	750505	BRIDGE DECK DRAINAGE SYSTEM	LB	8,800
79	800103	TEMPORARY FENCE (TYPE CL-6)	LF	170
80	800360	CHAIN LINK FENCE (TYPE CL-6)	LF	600



Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
81	800365	CHAIN LINK FENCE (TYPE CL-6, SLATTED)	LF	300
82	025581	CONCRETE BARRIER DELINEATOR (16-INCH)	EA	26
83	820110	MILEPOST MARKER	EA	2
84	820151	OBJECT MARKER (TYPE L-1)	EA	1
85 (F)	833032	CHAIN LINK RAILING (TYPE 7)	LF	414
86	839541	TRANSITION RAILING (TYPE WB)	EA	1
87	025582	CONCRETE BARRIER (TYPE 60 MODIFIED)	LF	880
88 (F)	839717	CONCRETE BARRIER (TYPE 732 MODIFIED)	LF	1,903
89 (F)	839720	CONCRETE BARRIER (TYPE 732)	LF	9,000
90 (F)	839723	CONCRETE BARRIER (TYPE 732B)	LF	120
91	840515	THERMOPLASTIC PAVEMENT MARKING	SQFT	500
92	846001	4" THERMOPLASTIC TRAFFIC STRIPE (ENHANCED WET NIGHT VISIBILITY)	LF	19,600
93	846004	4" THERMOPLASTIC TRAFFIC STRIPE (ENHANCED WET NIGHT VISIBILITY) (BROKEN 17-7)	LF	300
94	846005	4" THERMOPLASTIC TRAFFIC STRIPE (ENHANCED WET NIGHT VISIBILITY) (BROKEN 36-12)	LF	45,200
95	846009	8" THERMOPLASTIC TRAFFIC STRIPE (ENHANCED WET NIGHT VISIBILITY)	LF	1,750
96	846010	8" THERMOPLASTIC TRAFFIC STRIPE (ENHANCED WET NIGHT VISIBILITY) (BROKEN 12-3)	LF	5,520
97	850101	PAVEMENT MARKER (NON-REFLECTIVE)	EA	2,630
98	850111	PAVEMENT MARKER (RETROREFLECTIVE)	EA	1,710
99	860090	MAINTAINING EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION	LS	LUMP SUM
100	860400	LIGHTING (TEMPORARY)	LS	LUMP SUM

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
101	860407	LIGHTING (PARKING LOT)	LS	LUMP SUM
102	860889	MODIFY TRAFFIC MONITORING STATION	LS	LUMP SUM
103	025583	MODIFY CLOSED CIRCUIT TELEVISION SYSTEM	LS	LUMP SUM
104	861504	MODIFY LIGHTING AND SIGN ILLUMINATION	LS	LUMP SUM
105	999990	MOBILIZATION	LS	LUMP SUM

# SPECIAL PROVISIONS

## DIVISION I GENERAL PROVISIONS

### 1 GENERAL

Add to section 1-1.01:

#### Bid Items and Applicable Sections

Item code	Item description	Applicable section
025578	TEMPORARY CRASH CUSHION (ABSORB 350)	12
025579	RECONSTRUCT WOODEN BUMPER	15
044270	STRUCTURAL CONCRETE, BRIDGE (MODIFIED)	51
044271	STRUCTURAL CONCRETE, FIBER-REINFORCED PCC OVERLAY	51
025580	ROADSIDE SIGN (BRIDGE RAIL MOUNTED)	56
025581	CONCRETE BARRIER DELINEATOR (16-INCH)	82
025582	CONCRETE BARRIER (TYPE 60 MODIFIED)	83
025583	MODIFY CLOSED CIRCUIT TELEVISION SYSTEM	86

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### 2 BIDDING

Add to section 2-1.06B:

The Department makes the following supplemental project information available:

#### Supplemental Project Information

Means	Description
Included in <i>Information Handout</i>	Railroad relations and insurance requirements
Available as specified in the <i>Standard Specifications</i>	Bridge as-built drawings

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### 5 CONTROL OF WORK

Add to section 5-1.09A:

The Department encourages the project team to exhaust the use of partnering in dispute resolution before engagement of an objective third party.

For certain disputes, a facilitated partnering session or facilitated dispute resolution session may be appropriate and effective in clarifying issues and resolving all or part of a dispute.

To afford the project team enough time to plan and hold the session, a maximum of 20 days may be added to the DRB referral time following the Engineer's response to a *Supplemental Potential Claim Record*.

To allow this additional referral time, the project team must document its agreement and intention in the dispute resolution plan of the partnering charter. The team may further document agreement of any associated criteria to be met for use of the additional referral time.

If the session is not held, the DRB referral time remains in effect as specified in section 5-1.43.

**Add to section 5-1.20A:**

During the progress of the work under this Contract, work under the following contracts may be in progress at or near the job site of this Contract:

**Coincident or Adjacent Contracts**

Contract no.	County–Route–Post Mile	City	Type of work
03-1C12U4	SAC-50-R0.6/15.8	Sacramento	Widen ramps with HMA over AB and widen bridges for EB ramp metering
03-371204	SAC-50-R5.3	Sacramento	Modify Watt Avenue Interchange

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## 8 PROSECUTION AND PROGRESS

**Replace section 8-1.09 with:**

### 8-1.09 INCENTIVE/DISINCENTIVE FOR EARLY COMPLETION

The Department pays you the incentive for each day you complete the corresponding work part fewer than the calendar days shown in the following table except as specified for the maximum total incentive and deducts the disincentive for each day you complete the corresponding work part more than the calendar days shown in the following table except as specified for the maximum total disincentive:

**Incentive/Disincentive for Work Part Completion within Specified Times**

Work part	Calendar days	Incentive amount	Disincentive amount
Camellia City Viaduct EB (Bridge No. 24-0248R) - Stage 1	30	\$150,000 per day	\$150,000 per day
Camellia City Viaduct WB (Bridge No. 24-0248L) - Stage 2	30	\$150,000 per day	\$150,000 per day

The Department pays a maximum total incentive of \$1,500,000 per structure.

The Department deducts a maximum total disincentive of \$1,500,000 per structure.

These incentives and disincentives are independent of liquidated damages and other damages specified.

At your request, the Department may accelerate its inspection and testing. The Department deducts any additional expenses incurred as a result of the acceleration.



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## 12 TEMPORARY TRAFFIC CONTROL

Replace section 12-2 with:

### 12-2 CONSTRUCTION PROJECT FUNDING SIGNS

#### 12-2.01 GENERAL

Section 12-2 includes specifications for installing construction project funding signs.

Construction project funding signs must comply with the details shown on the Department's Traffic Operations Web site.

Keep construction project funding signs clean and in good repair at all times.

#### 12-2.02 MATERIALS

Construction project funding signs must be wood post signs complying with section 56-4.

Sign panels for construction project funding signs must be framed, single sheet aluminum panels complying with section 56-2.

The background on construction project funding signs must be Type II retroreflective sheeting on the Authorized Material List for signing and delineation materials.

The legend must be retroreflective, except for nonreflective black letters and numerals. The colors blue and orange must comply with PR Color no. 3 and no. 6, respectively, as specified in the Federal Highway Administration's *Color Tolerance Chart*.

The legend for the type of project on construction project funding signs must read as follows:

#### BRIDGE REPAIR

The legend for the types of funding on construction project funding signs must read as follows and in the following order:

#### FEDERAL HIGHWAY TRUST FUNDS

#### STATE HIGHWAY FUNDS

The Engineer will provide the year of completion for the legend on construction project funding signs. Furnish and install a sign overlay for the year of completion within 10 working days of notification.

The size of the legend on construction project funding signs must be as described. Do not add any additional information unless authorized.

#### 12-2.03 CONSTRUCTION

Install 2 Type 2 construction project funding signs at the locations designated by the Engineer before starting major work activities visible to highway users.

When authorized, remove and dispose of construction project funding signs upon completion of the project.

#### 12-2.04 PAYMENT

Not Used

Add to section 12-3.06C(1):

Cover roadside and overhead sign panels as show.

Install sign overlay on overhead sign panels as shown. Comply with the requirements in section 56-7.

**Add to section 12-3.06D:**

Full compensation for covering and uncovering roadside and overhead sign panels and installing sign overlays on overhead sign panels is included in the contract lump sum price paid for construction area signs and no separate payment will be allowed therefor.

**Add to section 12-3.11C:**

During Stage 1 and Stage 2, use plastic traffic drums instead of traffic cones for traffic control system for lane closures on Route 50.

**Replace section 12-3.11D with:**

Payment for plastic traffic drums as described on the traffic handling plans for traffic control system for lane closures is not included in the payment for plastic traffic drums.

**Add to section 12-3.12C:**

Start displaying the message on the portable changeable message sign 15 minutes or as directed by the Engineer before closing the lane.

Place the portable changeable message signs at locations designated on the plans and in advance of the 1st warning sign for each:

1. Stationary lane closure
2. Ramp closure
3. Connector closure
4. Shoulder closure

**Replace section 12-3.13 with:**

**12-3.13 IMPACT ATTENUATOR VEHICLE**

**12-3.13A General**

**12-3.13A(1) Summary**

Section 12-3.13 includes specifications for protecting traffic and workers with an impact attenuator vehicle during moving lane closures and when placing and removing components of stationary lane closures, ramp closures, shoulder closures, or a combination.

Do not use an impact attenuator vehicle to place, remove, or place and remove components of a stationary traffic control system on freeways and local streets where the useable shoulder width is less than 10 feet unless authorized by the Engineer.

Impact attenuator vehicles must comply with the following test levels under National Cooperative Highway Research Program 350:

1. Test level 3 if the preconstruction posted speed limit is 50 mph or more
2. Test levels 2 or 3 if the preconstruction posted speed limit is 45 mph or less

Comply with the attenuator manufacturer's instructions for:

1. Support truck
2. Trailer-mounted operation
3. Truck-mounted operation

Flashing arrow signs must comply with section 12-3.03. You may use a portable changeable message sign instead of a flashing arrow sign. If a portable changeable message sign is used as a flashing arrow sign, it must comply with section 6F.56 "Arrow Panels" of the *California MUTCD*.

**12-3.13A(2) Definitions**

**impact attenuator vehicle:** A support truck that is towing a deployed attenuator mounted to a trailer or a support truck with a deployed attenuator that is mounted to the support truck.

### **12-3.13A(3) Submittals**

Upon request, submit a certificate of compliance for each attenuator used on the project.

### **12-3.13A(4) Quality Control and Assurance**

Do not start impact attenuator vehicle activities until authorized.

Before starting impact attenuator vehicle activities, conduct a preinstallation meeting with the Engineer, subcontractors, and other parties involved with traffic control to discuss the operation of the impact attenuator vehicle during moving lane closures and when placing and removing components of stationary traffic control systems.

Schedule the location, time, and date for the preinstallation meeting with all participants. Furnish the facility for the preinstallation meeting within 5 miles of the job site or at another location if authorized.

### **12-3.13B Materials**

Attenuators must be a brand on the Authorized Material List for highway safety features.

The combined weight of the support truck and the attenuator must be at least 19,800 pounds, except the weight of the support truck must not be less than 16,100 or greater than 26,400 pounds.

For the Trinity MPS-350 truck-mounted attenuator, the support truck must not have a fuel tank mounted underneath within 10'-6" of the rear of the support truck.

Each impact attenuator vehicle must have:

1. Legal brake lights, taillights, sidelights, and turn signals
2. Inverted "V" chevron pattern placed across the entire rear of the attenuator composed of alternating 4-inch wide nonreflective black stripes and 4-inch wide yellow retroreflective stripes sloping at 45 degrees
3. Type II flashing arrow sign
4. Flashing or rotating amber light
5. Operable 2-way communication system for maintaining contact with workers

### **12-3.13C Construction**

Except where prohibited, use an impact attenuator vehicle:

1. To follow behind equipment and workers who are placing and removing components of a stationary lane closure, ramp closure, shoulder closure, or any combination. Operate the flashing arrow sign in the arrow or caution mode during this activity, whichever applies. Follow at a distance that prevents intrusion into the workspace from passing traffic.
2. As a shadow vehicle in a moving lane closure.

After placing components of a stationary traffic control system you may place the impact attenuator vehicle in advance of the work area or at another authorized location to protect traffic and workers.

Secure objects, including equipment, tools, and ballast on impact attenuator vehicles to prevent loosening upon impact by an errant vehicle.

Do not use a damaged attenuator in the work. Replace any attenuator damaged from an impact during work activities at your expense.

### **12-3.13D Payment**

Not Used

### **Add section 12-3.18:**

## **12-3.18 TEMPORARY CRASH CUSHION (ABSORB 350)**

### **12-3.18A General**

#### **12-3.18A(1) Summary**

Section 12-3.18 includes specifications for installing and maintaining an Absorb-350 temporary crash cushion at each location as shown.



### **12-3.18A(2) Submittals**

You must furnish the Engineer one copy of the manufacturer's plan and parts list for the crash cushion to be installed.

Submit a certificate of compliance for each temporary crash cushion used on the project from the manufacturer.

### **12-3.18B Materials**

Temporary crash cushion must be an (ABSORB 350 TL-3), 9-element system, manufactured by Barrier Systems, Inc.

Temporary crash cushion (ABSORB 350 TL-3) must be a non-redirective, gating type, manufactured by Barrier Systems, Inc. Temporary crash cushion (ABSORB 350 TL-3) must conform to the descriptions as follows:

Contract Item Description	Manufacturer's Protect Description
ABSORB-350	ABSORB 350 TL-3 (9 element) CRASH CUSHION

Obtain the temporary crash cushion (ABSORB 350 TL-3) from the manufacturer, Barrier Systems, Inc. through its distributor, Statewide Safety and Signs at the following location:

1. 130 Grobrie Court  
Fairfield, CA 9433  
Telephone: 1-707-864-9952 or 1-800-770-2644  
Fax: 1-707-864-9956
2. 522 Lindon Lane  
Nipomo, CA 93444  
Telephone: 1-800-559-7080  
Fax: -805-929-5786

The price quoted by the manufacturer for temporary crash cushion (Absorb 350), FOB Fairfield, California is \$8,505.00, not including sales tax.

The above price will be firm for orders placed on or before 10/31/2013.

### **12-3.18C Construction**

#### **12-3.18C(1) Installation**

Temporary crash cushion (Absorb 350) must be installed in conformance with the manufacturer's installation instructions.

A Type R or P marker panel must be attached to the front of the temporary crash cushion (Absorb 350), when the closest point of the crash cushion array is within 12 feet of the traveled way. The marker panel, when required, must be firmly fastened to the temporary crash cushion (Absorb 350) with commercial quality hardware or by other methods determined by the Engineer.

#### **12-3.18C(2) Maintenance**

At the completion of the project, temporary crash cushion and marker panels become the property of the Contractor and must be removed from the site of the work.

Temporary crash cushions damaged due to the Contractor's operations must be repaired immediately by the Contractor at the Contractor's expense. Temporary crash cushions damaged beyond repair, as determined by the Engineer, due to the Contractor's operations must be removed and replaced by the Contractor at the Contractor's expense.

### **12-3.18D Payment**

Temporary crash cushion (Absorb 350) is measured by the unit as determined from actual count of cushions used in the work or ordered by the Engineer at each location.

Repairing the temporary crash cushion damaged by public traffic will be change order work. Temporary crash cushions damaged beyond repair by public traffic, when ordered by the Engineer, must be removed and replaced immediately by the Contractor.

If the Engineer orders a lateral move of the temporary crash cushion and the repositioning is not shown on the plans, moving the temporary crash cushion is change order work and the temporary crash cushion is not counted for payment in the new position.

**Add to section 12-4.01:**

Payment for providing passage for bicyclists through a traffic control work zone on local streets is included in the payment for traffic control system.

**Add to section 12-4.02A:**

If work including installing, maintaining, and removing Type K temporary railing is to be performed within 6 feet of the adjacent traffic lane, close the adjacent traffic lane.

Except as listed above, closure of the adjacent traffic lane is not required for installing, maintaining, and removing traffic control devices.

For grinding and grooving operations, sawcutting concrete slabs, and installing loop detectors with an impact attenuator vehicle as a shadow vehicle, closure of the adjacent traffic lane is not required.

Designated holidays are as shown in the following table:

**Designated Holidays**

Holiday	Date observed
New Year's Day	January 1st
Washington's Birthday	3rd Monday in February
Memorial Day	Last Monday in May
Independence Day	July 4th
Labor Day	1st Monday in September
Veterans Day	November 11th
Thanksgiving Day	4th Thursday in November
Christmas Day	December 25th

If a designated holiday falls on a Sunday, the following Monday is a designated holiday. If November 11th falls on a Saturday, the preceding Friday is a designated holiday.

In the City of Sacramento, there is an annual 18-day long event called "California State Fair". You will be responsible for determining when these events occur one month before work begins by calling the Administration Office of "California State Fair" at (877) 225-3976 or (916) 263-3247. Lane closures and shoulder closures will be restricted during the annual "California State Fair" event for the life of this contract. No lane closures, shoulder closures, or other traffic restrictions will be allowed in the northbound/southbound direction of SR 51, eastbound/westbound direction of US 50 and in the northbound/southbound direction of SR 99 weekdays and weekends during the event. Should this requirement delay the controlling activity as specified in Section 1, "General," and Section 8, "Prosecution And Progress" of the Standard Specifications, the days will be considered non-working days, except as otherwise noted within these special provisions.

The maximum length of a single stationary lane closure is 1 mile.

Not more than 1 stationary lane closure will be allowed in each direction of travel at one time. Freeway closure charts are for removing and placing striping, temporary railing (Type K), and other authorized work.

Personal vehicles of your employees must not be parked within the right-of-way. On multilane highways, if work vehicles or equipment are parked within 6 feet of a traffic lane, close the shoulder area as shown.

On local streets, if work vehicles or equipment are parked within 6 feet of a traffic lane, close the shoulder area with fluorescent orange traffic cones or portable delineators. Place the cones or delineators on a taper in advance of the parked vehicles or equipment and along the edge of the pavement at 25-foot intervals to a point not less than 25 feet past the last vehicle or piece of equipment. Use at least 9 cones or delineators for the taper. Use a W20-1, "Road Work Ahead," W21-5b, "Right/Left Shoulder Closed Ahead," or C24(CA), "Shoulder Work Ahead," sign mounted on a crashworthy, portable sign support with flags. The sign must be placed as ordered by the Engineer and at least 48 by 48 inches in size. If a cone or delineator is displaced or overturned, immediately restore the device to its original position or location.

On multilane highways, a minimum of 1 paved traffic lane not less than 12 feet wide must be open for use by traffic in each direction of travel.

If a connector closure is required within the limits of a freeway lane closure, complete the work on the connector first. Then, complete the work on the freeway traveled way necessary to ensure safe passage of traffic between the connector and open freeway lanes. Complete the remaining work only after reopening the connector.

Have the necessary materials and equipment on site to erect or remove the falsework over any opening (local streets under viaduct) before detouring or stopping traffic.

The full width of the traveled way must be open to traffic when construction activities are not actively in progress.

Equipment and materials must not remain in a lane unless the lane is closed to traffic and is used for Contract activities.

If a lane is closed for construction activities and opening the lane becomes necessary for use by traffic, immediately stop active Contract activities and start clearing the lane.

Your vehicles are subject to the provisions under chapter 13, "Vehicular Crossings," of the Vehicle Code. Do not make lane closures if the atmospheric visibility is less than 1,000 feet.

**Add between the 3rd and 4th paragraphs of the RSS for section 12-4.03:**

For the following operations, submit the contingency plan and discuss with the Engineer at least 5 business days before starting that operation:

1. Full roadway closures
2. Rapid-set concrete operations
3. Striping
4. Placement of bar reinforcing steel
5. Falsework erection or removal, including adjustments
6. Bridge work

**Add to section 12-4.03:**

For each 10-minute interval or fraction thereof past the time specified to reopen the closure, the Department deducts the amount for damages per interval shown below. Damages are limited to 5 percent of the total bid per occurrence. Damages are not assessed if the Engineer orders the closure to remain in place beyond the scheduled pickup time.

Type of facility	Route/Direction	Period	Damages/interval (\$)
Mainline	Sac-50 EB	1st half hour 2nd half hour 2nd hour and beyond	\$3,450 / 10 minutes \$5,200 / 10 minutes \$6,900 / 10 minutes
Mainline	Sac-50 WB	1st half hour 2nd half hour 2nd hour and beyond	\$3,200 / 10 minutes \$4,800 / 10 minutes \$6,400 / 10 minutes
Connector	SB 5 to EB 50	1st half hour 2nd half hour 2nd hour and beyond	\$1,450 / 10 minutes \$2,200 / 10 minutes \$2,900 / 10 minutes
Connector	NB 99 to WB 50	1st half hour 2nd half hour 2nd hour and beyond	\$1,900 / 10 minutes \$2,850 / 10 minutes \$3,800 / 10 minutes

Replace "Reserved" in section 12-4.04 with:

Lane Closure Restriction for Designated Holidays and Special Days										
Thu	Fri	Sat	Sun	Mon	Tues	Wed	Thu	Fri	Sat	Sun
x	<b>H</b> xx	xx	xx							
	<b>SD</b> xx									
x	xx	<b>H</b> xx	xx							
		<b>SD</b> xx								
	x	xx	<b>H</b> xx	xx						
			<b>SD</b> xx							
	x	xx	xx	<b>H</b> xx	xxx					
	x	xx	xx	<b>SD</b> xx	xxx					
				x	<b>H</b> xx					
				x	<b>SD</b> xx					
					x	<b>H</b> xx				
						<b>SD</b> xx				
						x	<b>H</b> xx	xx	xx	xx
							<b>SD</b> xx			

Legend:

	Refer to lane requirement charts
x	The full width of the traveled way must be open for use by traffic after 0500 hrs.
xx	The full width of the traveled way must be open for use by traffic.
xxx	The full width of the traveled way must be open for use by traffic until 2300 hrs.
<b>H</b>	Designated holiday
<b>SD</b>	Special day

Replace "Reserved" in section 12-4.05B with:

Chart no. 1 Freeway Lane Requirements																														
County: Sac						Route/Direction: 50/Eastbound										PM: L1.3/L2.2														
Closure limits: PM L1.2/L2.4																														
From hour to hour						24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays						2	2	2	2	2																		3	3	2
Fridays						2	2	2	2	2																		4	4	3
Saturdays						2	2	2	2	2	2	2	3												4	4	4	4	3	
Sundays						2	2	2	2	2	2	2	2	3										4	4	4	3	3	2	
Legend:																														
2						Provide at least 2 adjacent through freeway lanes open in direction of travel																								
3						Provide at least 3 adjacent through freeway lanes open in direction of travel																								
4						Provide at least 4 adjacent through freeway lanes open in direction of travel																								
						Work allowed within the highway where shoulder or lane closure is not required																								
REMARKS: There are at least five existing freeway lanes and one auxiliary lane available in the direction of travel.																														

Replace "Reserved" in section 12-4.05B with:

Chart no. 2 Freeway Lane Requirements																												
County: Sac				Route/Direction: 50/Eastbound												PM: L1.3/L2.2												
Closure limits: PM L1.6/L2.1																												
From hour to hour				24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Fridays				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Saturdays				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Sundays				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Legend:																												
2				Provide at least 2 adjacent through freeway lanes open in direction of travel																								
REMARKS:																												
<div>1. This chart is to be used during stage 1 EB complete closure for 30 closures days where EB traffic is crossed over to the WB 50 bridge structure (Camellia City Viaduct).</div> <div>2. Provide 2 EB lanes and 4 WB lanes open on the westbound side of US 50 (on Camellia City Viaduct) as shown on Stage Construction Plans and Traffic Handling Plans.</div> <div>3. During this closure, EB 50 On-Ramps from X Street &amp; 11th Street, X Street &amp; 16th Street, SB 99 connector from EB 50 and NB 51 connector from EB 50 shall be completely closed.</div>																												

Replace "Reserved" in section 12-4.05B with:

Chart no. 3 Freeway Lane Requirements																																	
County: Sac								Route/Direction: 50/Westbound										PM: L1.3/L2.2															
Closure limits: PM L1.2/L2.4																																	
From hour to hour								24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Mondays through Thursdays								2	2	2	2	2																4	4	3	2		
Fridays								2	2	2	2	2																4	4	3	3		
Saturdays								2	2	2	2	2	2	2	3													4	4	4	4	3	
Sundays								2	2	2	2	2	2	2	2	3													4	4	3	3	2
<p>Legend:</p> <div style="display: flex; margin-bottom: 5px;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 5px;">2</div> <div>Provide at least 2 adjacent through freeway lanes open in direction of travel</div> </div> <div style="display: flex; margin-bottom: 5px;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 5px;">3</div> <div>Provide at least 3 adjacent through freeway lanes open in direction of travel</div> </div> <div style="display: flex; margin-bottom: 5px;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 5px;">4</div> <div>Provide at least 4 adjacent through freeway lanes open in direction of travel</div> </div> <div style="display: flex; margin-bottom: 5px;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 5px;"></div> <div>Work allowed within the highway where shoulder or lane closure is not required</div> </div>																																	
REMARKS: There are at least five existing freeway lanes and one auxiliary lane available in the direction of travel.																																	

Replace "Reserved" in section 12-4.05B with:

Chart no. 4 Freeway Lane Requirements																												
County: Sac				Route/Direction: 50/Westbound												PM: L1.3/L2.2												
Closure limits: L1.6/L2.1																												
From hour to hour				24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Fridays				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Saturdays				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Sundays				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Legend:																												
2				Provide at least 2 adjacent through freeway lanes open in direction of travel																								
REMARKS:																												
<div>1. This chart is to be used during stage 2 WB complete closure 30 closures days where WB traffic is crossed over to the EB 50 bridge structure (Camellia City Viaduct).</div> <div>2. Provide 2 WB lanes and 4 EB lanes open on the eastbound side of US 50 (on Camellia City Viaduct) as shown on Stage Construction Plans and Traffic Handling Plans.</div> <div>3. During this closure, WB 50 Off-Ramps to 10th &amp; W Street, 16th &amp; W Street, NB 99 connector to WB 50 and SB 51 connector to WB 50 shall be completely closed.</div>																												

Replace "Reserved" in section 12-4.05D with:

Chart no. 5 Connector Lane Requirements																															
County: Sac							Route/Direction: 50/Eastbound										PM: L1.3/L2.2														
Closure limits: SB 5 to EB 50 connector (Sac 5, PM 22.9)																															
From hour to hour							24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays							1	1	1	1	1																				1
Fridays							1	1	1	1	1																				1
Saturdays							1	1	1	1	1	1																			1
Sundays							1	1	1	1	1	1	1																		1
Legend:																															
1							Provide at least 1 connector lane open in direction of travel																								
							No work allowed																								
REMARKS:																															
1. This chart is to be used for striping work on the SB 5 to EB 50 connector. 2. NB 5 to EB 50 connector shall be closed when using this chart. 3. When NB 5 to EB 50 connector is closed, public traffic shall be detoured in accordance with Traffic Handling Plans and Detour Plans.																															

Replace "Reserved" in section 12-4.05D with:

Chart no. 6 Connector Lane Requirements																													
County: Sac					Route/Direction: 50/Westbound										PM: L1.3/L2.2														
Closure limits: NB 99 to WB 50 connector (Sac 99, PM 23.8)																													
From hour to hour					24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays					1	1	1	1	1																				1
Fridays					1	1	1	1	1																				1
Saturdays					1	1	1	1	1	1																			1
Sundays					1	1	1	1	1	1	1	1																	1
Legend:																													
1		Provide at least 1 connector lane open in direction of travel																											
		No work allowed																											
REMARKS: This chart is for striping work only on the NB 99 to WB 50 connector.																													

Replace "Reserved" in section 12-4.05E with:

Chart no. 7 Complete Ramp Closure Hours																													
County: Sac					Route/Direction: 50/Eastbound										PM: L1.3/L2.2														
Closure limits: EB 50 On-Ramps from 11th & X Street and 16th & X Street																													
From hour to hour					24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays					C	C	C	C	C	C																	C	C	
Fridays					C	C	C	C	C	C																	C	C	
Saturdays					C	C	C	C	C	C	C	C	C														C	C	
Sundays					C	C	C	C	C	C	C	C															C	C	
Legend:																													
<div>C</div>					Ramp may be closed completely																								
<div></div>					Work allowed within the highway where shoulder or lane closure is not required																								
REMARKS: When a ramp is closed, public traffic shall be detoured in accordance with Traffic Handling Plans and Detour Plans.																													



**Replace "Reserved" in section 12-4.05E with:**

Chart no. 8 Complete Ramp Closure Hours																												
County: Sac				Route/Direction: 50/Westbound												PM: L1.3/L2.2												
Closure limits: WB 50 Off-Ramps to 10th & W Street and 16th & W Street																												
From hour to hour				24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays				C	C	C	C	C	C																			C
Fridays				C	C	C	C	C	C																			
Saturdays				C	C	C	C	C	C	C	C																	
Sundays				C	C	C	C	C	C	C	C															C	C	C
<div>Legend:</div> <div><div>C</div> Ramp may be closed completely</div> <div><div></div> Work allowed within the highway where shoulder or lane closure is not required</div>																												
REMARKS: When a ramp is closed, public traffic shall be detoured in accordance with Traffic Handling Plans and Detour Plans.																												

Replace "Reserved" in section 12-4.05G with:

<b>Chart no. 9</b> <b>Complete Local Street Closure Hours</b>																												
County: Sac								Route: 50								PM: L1.3/L2.2												
Closure limits: 20th Street between X-Street and W-Street 21th Street between X-Street and W-Street 22th Street between X-Street and W-Street 23th Street between X-Street and W-Street 24th Street between X-Street and W-Street																												
From hour to hour		24 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24																										
Mondays through Thursdays		C	C	C	C	C	C																			C	C	C
Fridays		C	C	C	C	C	C																			C	C	C
Saturdays		C	C	C	C	C	C	C	C																C	C	C	C
Sundays		C	C	C	C	C	C	C	C																C	C	C	C
<b>Legend:</b> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid black; width: 20px; height: 15px; display: flex; align-items: center; justify-content: center; margin-right: 5px;">C</div> Local street may be closed completely </div> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; width: 20px; height: 15px; display: flex; align-items: center; justify-content: center; margin-right: 5px;"></div> No complete local street closure is allowed </div>																												
<b>REMARKS:</b> <ol style="list-style-type: none"> <li>1. This chart may be used for closing any of the above local streets while demolishing existing concrete railings on viaduct, and erecting and removal of falsework for proposed concrete railing on viaduct.</li> <li>2. Only one street at a time shall be closed for the work listed above.</li> <li>3. When a street is closed for the work listed above, public traffic shall be detoured to other streets.</li> <li>4. Only lane # 1 of W-Street and X-Street may be closed while using this chart for the work listed above.</li> <li>5. Working over the Union Pacific Railroad and Regional Transit Light Rail Tracks is only allowed between 1 A.M &amp; 4 A.M (Tuesday to Saturday) and between 11 P.M &amp; 4 A.M (Sunday) or as approved by the Engineer.</li> </ol>																												

Replace "Reserved" in section 12-4.05B with:

<b>Chart no. 10</b> <b>Freeway Lane Requirements</b>																											
County: Sac	Route/Direction: 51/Southbound														PM: 0.0/0.5												
Closure limits: PM 0.0/0.5																											
From hour to hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
Mondays through Thursdays	3	3	3	3	3																			3	3		
Fridays	3	3	3	3	3																				3		
Saturdays	3	3	3	3	3	3	3	3																	3		
Sundays	3	3	3	3	3	3	3	3	3														3	3	3		
<b>Legend:</b> <div style="display: flex; margin-bottom: 10px;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 5px;">3</div> <div>Provide at least 3 adjacent through freeway lanes open in direction of travel</div> </div> <div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 5px;"></div> <div>Work allowed within the highway where shoulder or lane closure is not required</div> </div>																											
<b>REMARKS:</b> <ol style="list-style-type: none"> <li>1. There are four existing freeway lanes available in the direction of travel. Only #4 lane of SB 51 mainline may be closed.</li> <li>2. This chart is to be used for placing channelizers as shown in Traffic Handling Plans to close SB 51 connector to WB 50.</li> <li>3. When SB 51 connector to WB 50 is closed, public traffic shall be detoured in accordance with Traffic Handling Plans and Detour Plans.</li> </ol>																											

Replace "Reserved" in section 12-4.05B with:

Chart no. 11 Freeway Lane Requirements																														
County: Sac						Route/Direction: 99/Northbound										PM: 23.8/24.2														
Closure limits: PM 23.8/24.2																														
From hour to hour						24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays						3	3	3	3																					3
Fridays						3	3	3	3																					3
Saturdays						3	3	3	3	3	3																		3	
Sundays						3	3	3	3	3	3	3																3	3	
Legend:																														
3						Provide at least 3 adjacent through freeway lanes open in direction of travel																								
						Work allowed within the highway where shoulder or lane closure is not required																								
REMARKS:																														
1. There are four existing freeway lanes available in the direction of travel. Only #4 lane of NB 99 mainline may be closed.																														
2. This chart is to be used for placing channelizers as shown in Traffic Handling Plans to close NB 99 connector to WB 50.																														
3. When NB 99 connector to WB 50 is closed, public traffic shall be detoured in accordance with Traffic Handling Plans and Detour Plans.																														

## 12-5 TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE

### 12-5.01 GENERAL

Section 12-5 includes specifications for closing traffic lanes, ramps, or a combination, with stationary and moving lane closures on multilane highways and 2-lane, 2-way highways (local streets). The traffic control system for a lane closure or a ramp closure must comply with the details shown.

Traffic control system includes signs.

### 12-5.02 MATERIALS

Vehicles equipped with attenuators must comply with section 12-3.13 of the special provisions.

### 12-5.03 CONSTRUCTION

#### 12-5.03A General

During traffic striping and pavement marker placement using bituminous adhesive, control traffic with a stationary or a moving lane closure. During other activities, control traffic with stationary lane closures.

Whenever components of the traffic control system are displaced or cease to operate or function as specified from any cause, immediately repair the components to the original condition or replace the components and restore the components to the original location.

#### 12-5.03B Stationary Lane Closures

For a stationary lane closure, ramp closure, or a combination, made only for the work period, remove the components of the traffic control system from the traveled way and shoulder, except for portable delineators placed along open trenches or excavation adjacent to the traveled way at the end of each work period. You may store the components at selected central locations designated by the Engineer within the limits of the highway.

Each vehicle used to place, maintain, and remove components of a traffic control system on a multilane highway must be equipped with a Type II flashing arrow sign that must be in operation whenever the vehicle is being used for placing, maintaining, or removing the components. Vehicles equipped with a Type II flashing arrow sign not involved in placing, maintaining, or removing the components if operated within a stationary-type lane closure must display only the caution display mode. The sign must be controllable by the operator of the vehicle while the vehicle is in motion. If a flashing arrow sign is required for a lane closure, the flashing arrow sign must be operational before the lane closure is in place.

#### **12-5.03C Moving Lane Closures**

A changeable message sign used in a moving lane closure must comply with section 12-3.12 except the sign must be truck-mounted. The full operational height to the bottom of the sign may be less than 7 feet above the ground but must be as high as practicable.

A flashing arrow sign used in a moving lane closure must be truck-mounted.

#### **12-5.04 PAYMENT**

Traffic control system for lane closure is paid for as traffic control system. Flagging costs are paid for as specified in section 12-1.03.

The requirements in section 4-1.05 for payment adjustment do not apply to traffic control system. Adjustments in compensation for traffic control system will be made for an increase or decrease in traffic control work if ordered and will be made on the basis of the cost of the necessary increased or decreased traffic control. The adjustment will be made on a force account basis for increased work and estimated on the same basis in the case of decreased work.

A traffic control system required by change order work is paid for as a part of the change order work.

#### **12-5.05 END OF QUEUE WARNING**

##### **12-5.05A GENERAL**

This work includes monitoring the end of queue and warning approaching traffic, using a changeable message sign truck (CMST), when traffic ahead is moving less than 45 mph on US 50.

Comply with Division II, Section 12, "Temporary Traffic Control," of the Standard Specifications.

Prior to commencing work, provide the Engineer an hourly cost breakdown for end of queue warning.

##### **12-5.05B MATERIALS**

Each CMST must be in good working order and must have:

1. A gross vehicle weight rating of at least 2,000 pounds.
2. A cellular phone.
3. A rotating amber light.
4. An external speaker and address system.
5. A 54"x 42" SC15 (CA) (CAUTION) sign attached to tailgate.
6. A two-way radio and programmable scanner capable of scanning Caltrans and CHP radio frequencies.

Changeable message sign (CMS) must display alternating messages, "SLOW TRAFFIC AHEAD" and "PREPARE TO STOP," at 3-second intervals with minimum 12-inch tall characters. The message displayed on the sign must be visible from at least 1,500 feet away and must be legible from a distance of 750 feet at noon on a cloudless day by persons with 20/20 vision for vision corrected to 20/20.

##### **12-5.05C CONSTRUCTION**

Mount CMS on supporting structure affixed to the pick-up truck under the manufacturer's recommendations.

During the days and times shown in the following table, provide 2 CMST for each direction of travel and assign at least one trained operator for each CMST.

Description	Times	
	Eastbound	Westbound
As shown on plans, EB Full closure of Camellia City Viaduct on US 50	24/7 (30 days)	24/7 (30 days)
As shown on plans, WB Full closure of Camellia City Viaduct on US 50	24/7 (30 days)	24/7 (30 days)

The CMST shall be located and periodically moved as necessary, to a position no more than 1,500 feet and no less than 1,000 feet before the end of the queue.

Reposition CMST as necessary to maintain above distances until traffic condition abates and traffic flow is greater than 45 mph. Coordinate activity with other CMSTs. Advise other CMSTs and the Engineer of changing traffic conditions.

Safely stop CMST outside of traveled way, as far from traffic as practicable, and where an errant vehicle is least likely to hit.

When traffic conditions persist and work has ceased or you are repositioned outside the project limits, notify the Engineer and continue to maintain traffic.

#### **12-5.05D PAYMENT**

Full compensation for end of queue warning is considered as included in the contract lump sum price paid for traffic control system and no separate payment will be made therefor.

**Replace section 12-8 with:**

### **12-8 TEMPORARY PAVEMENT DELINEATION**

#### **12-8.01 GENERAL**

Section 12-8 includes specifications for placing, applying, maintaining, and removing temporary pavement delineation.

Temporary signing for no-passing zones must comply with section 12-3.06.

Temporary painted traffic stripes and painted pavement markings used for temporary delineation must comply with section 84-3.

#### **12-8.02 MATERIALS**

##### **12-8.02A General**

Not Used

##### **12-8.02B Temporary Lane Line and Centerline Delineation**

Temporary pavement markers must be the same color as the lane line or centerline markers being replaced. Temporary pavement markers must be temporary pavement markers on the Authorized Material List for short-term day/night use, 14 days or less, or long-term day/night use, 180 days or less. Place temporary pavement markers under the manufacturer's instructions.

##### **12-8.02C Temporary Edge Line Delineation**

On multilane roadways, freeways, and expressways open to traffic where edge lines are obliterated and temporary pavement delineation to replace those edge lines is not shown, provide temporary pavement delineation for:

1. Right edge lines consisting of (1) a solid 4-inch wide traffic stripe tape of the same color as the stripe being replaced, (2) traffic cones, or (3) portable delineators or channelizers placed longitudinally at intervals not exceeding 100 feet
2. Left edge lines consisting of (1) solid 4-inch wide traffic stripe tape of the same color as the stripe being replaced, (2) traffic cones, (3) portable delineators or channelizers placed longitudinally at intervals not exceeding 100 feet, or (4) temporary pavement markers placed longitudinally at intervals not exceeding 6 feet

#### **12-8.02D Temporary Traffic Stripe Tape**

Temporary traffic stripe tape must be one of the types of temporary, removable striping tape on the Authorized Material List.

#### **12-8.02E Temporary Traffic Stripe Paint**

Not Used

#### **12-8.02F Temporary Pavement Marking Tape**

Temporary pavement marking tape must be one of the types of temporary, removable pavement marking tape on the Authorized Material List and must be applied and removed as specified for applying and removing temporary, removable traffic stripe tape.

#### **12-8.02G Temporary Pavement Marking Paint**

You may use one of the types of temporary removable pavement marking tape or permanent pavement marking tape on the Authorized Material List instead of temporary pavement marking paint.

#### **12- 8.02H Temporary Pavement Markers**

Temporary pavement markers must be one of the temporary pavement markers on the Authorized Material List for long term day/night use, 180 days or less.

### **12-8.03 CONSTRUCTION**

#### **12-8.03A General**

Wherever work activities obliterate pavement delineation, place temporary or permanent pavement delineation before opening the traveled way to traffic. Place lane line and centerline pavement delineation for traveled ways open to traffic. On multilane roadways, freeways and expressways, place edge line delineation for traveled ways open to traffic.

Establish the alignment for the temporary pavement delineation including required lines or markers. Surfaces to receive an application of paint or removable traffic tape must be dry and free of dirt and loose material. Do not apply temporary pavement delineation over existing pavement delineation or other temporary pavement delineation. Maintain temporary pavement delineation until it is superseded or you replace it with a new pattern of temporary pavement delineation or permanent pavement delineation.

When the Engineer determines the temporary pavement delineation is no longer required for the direction of traffic, remove the temporary pavement markers, underlying adhesive, and removable traffic tape from the final layer of surfacing and from the existing pavement to remain in place. Remove temporary pavement delineation that conflicts with any subsequent or new traffic pattern for the area.

#### **12-8.03B Temporary Lane line and Centerline Delineation**

Whenever lane lines or centerlines are obliterated and temporary pavement delineation to replace the lines is not shown, the minimum lane line and centerline delineation must consist of temporary pavement markers placed longitudinally at intervals not exceeding 24 feet. For temporary pavement markers on the Authorized Material List for long-term day/night use, 180 days or less, cement the markers to the surfacing with the adhesive recommended by the manufacturer except do not use epoxy adhesive to place the pavement markers in areas where removal of the markers will be required.

For temporary lane line or centerline delineation consisting entirely of temporary pavement markers on the Authorized Material List for short-term day/night use, 14 days or less, place the markers longitudinally at intervals not exceeding 24 feet. Do not use the markers for more than 14 days on lanes opened to traffic. Place the permanent pavement delineation before the end of the 14 days. If the permanent pavement delineation is not placed within the 14 days, replace the temporary pavement markers with additional temporary pavement delineation equivalent to the pattern specified or shown for the permanent pavement delineation for the area. The Department does not pay for the additional temporary pavement delineation.

#### **12-8.03C Temporary Edge Line Delineation**

You may apply temporary painted traffic stripe where removal of a 4-inch wide traffic stripe is not required.

The Engineer determines the lateral offset for traffic cones, portable delineators, and channelizers used for temporary edge line delineation. If traffic cones or portable delineators are used for temporary pavement delineation for edge lines, maintain the cones or delineators during hours of the day when the cones or delineators are being used for temporary edge line delineation.

Channelizers used for temporary edge line delineation must be an orange surface-mounted type. Cement channelizer bases to the pavement under section 85 for cementing pavement markers to pavement except do not use epoxy adhesive to place channelizers on the top layer of the pavement. Channelizers must be one of the 36-inch, surface-mounted types on the Authorized Material List.

Remove the temporary edge line delineation when the Engineer determines it is no longer required for the direction of traffic.

#### **12-8.03D Temporary Traffic Stripe Tape**

Apply temporary traffic stripe tape under the manufacturer's instructions. Slowly roll the tape with a rubber-tired vehicle or roller to ensure complete contact with the pavement surface. Apply the tape straight on a tangent alignment and on a true arc on a curved alignment. Do not apply the tape when the air or pavement temperature is less than 50 degrees F unless the installation procedures are authorized beforehand.

The temporary traffic stripe tape must be complete in place at the location shown before opening the traveled way to traffic.

#### **12-8.03E Temporary Traffic Stripe Paint**

Apply 1 or 2 coats of temporary traffic stripe paint for new or existing pavement.

The painted temporary traffic stripe must be complete in place at the location shown before opening the traveled way to traffic. Removal of painted temporary traffic stripe is not required.

#### **12-8.03F Temporary Pavement Marking Tape**

Apply temporary pavement marking tape at the locations shown. The tape must be complete in place at the location shown before opening the traveled way to traffic.

#### **12-8.03G Temporary Pavement Marking Paint**

Apply and maintain temporary pavement markings consisting of painted pavement markings at the locations shown. The painted temporary pavement marking must be complete in place at the location shown before opening the traveled way to traffic. Removal of painted temporary pavement marking is not required.

Apply 1 or 2 coats of temporary pavement marking paint for new or existing pavement.

#### **12- 8.03H Temporary Pavement Markers**

Place temporary pavement markers under the manufacturer's instructions. Cement the markers to the surfacing with the manufacturer's recommended adhesive, except do not use epoxy adhesive in areas where removal of the pavement markers is required.

You may use retroreflective pavement markers specified in section 85 instead of temporary pavement markers for long term day/night use, 180 days or less, except to simulate patterns of broken traffic stripe. Retroreflective pavement markers used for temporary pavement markers must comply with section 85, except the waiting period before placing pavement markers on new HMA surfacing as specified in section 85-1.03 does not apply. Do not use epoxy adhesive to place pavement markers in areas where removal of the pavement markers is required.

Temporary pavement markers must be complete in place before opening the traveled way to traffic.

#### **12-8.04 PAYMENT**

Not Used



AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

## 13 WATER POLLUTION CONTROL

### Add to section 13-1.01A:

The Central Valley RWQCB will review the authorized WPCP.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

## 14 ENVIRONMENTAL STEWARDSHIP

### Replace section 14-6.02 with:

#### 14-6.02 SPECIES PROTECTION

##### 14-6.02A General

Section 14-6.02 includes specifications for protecting regulated species or their habitat.

This project is within or near habitat for regulated species shown in the following table:

Species Name
Purple Martin
Mexican Free-Tailed Bats
White-Throated Swift

##### 14-6.02B Material

Not Used

##### 14-6.02C Construction

###### 14-6.02C(1) General

Not Used

###### 14-6.02C(2) Protective Radius

Upon discovery of a regulated species, stop construction activities within a 100-foot radius of the discovery. Immediately notify the Engineer. Do not resume activities until receiving notification from the Engineer.

###### 14-6.02C(3) Protocols

Not Used

###### 14-6.02C(4) Biological Resource Information

Not Used

###### 14-6.02C(5) Protection Measures

Within species protection area 1, implement the following protection measures:

1. Nest prevention devices must be left in place until all work is completed. Maintain these devices in good working order until conclusion of the project and remove them once the work under the structure is complete, or as directed by the Engineer.

**14-6.02C(6) Monitoring Schedule**

Not Used

**14-6.02D Payment**

Not Used

**Replace section 14-6.06 with:**

**14-6.06 SPECIES PROTECTION AREA****14-6.06A General****14-6.06A(1) Summary**

Section 14-6.06 includes specifications for areas that have species protection requirements.

Species protection areas (SPAs) within the project limits are shown:

**Species Protection Areas**

Identification	Location
SPA 1	Entire project limits

**14-6.06B Materials**

Not Used

**14-6.06C Construction**

Not Used

**14-6.06D Payment**

Not Used

**Add to section 14-8.02A:**

It may be necessary to implement noise mitigation measures such as: changing the location of stationary construction equipment; turning off idling equipment; rescheduling construction activity; notifying nearby residents in advance of construction work; and initiating the use of noise curtains, noise tents, and/or temporary barriers to screen stationary noise-generating equipment.

**Add to section 14-9.02A**

Notify the Air Pollution Control District (APCD) or Air Quality Management District (AQMD) identified below as required by the National Emission Standards for Hazardous Air Pollutants (NESHAP) at 40 CFR Part 61, Subpart M, and California Health and Safety Code section 39658(b)(1). Notification must take place no less than 14 days before starting demolition or renovation activities as defined in the NESHAP regulations. Notification forms and other information are available from:

Sacramento Metropolitan Air Quality Management District (SMAQMD)  
777 12th Street, 3rd Floor  
Sacramento, CA. 95814  
(916) 874-4800  
[www.airquality.org/](http://www.airquality.org/)

Forms and information may also be obtained from the air district's web site at: <http://www.aqmd.gov>.

Mail or otherwise deliver the original notification form with any necessary attachments to:

SMAQMD  
777 12th Street, 3rd Floor  
Sacramento, CA. 95814

Notify other local permit agencies and utility companies before starting any demolition activities. Submit a copy of the notification form and attachments as an informational submittal before starting demolition or renovation activities.

**Replace section 14-11.07 with:**

**14-11.07 REMOVE YELLOW TRAFFIC STRIPE AND PAVEMENT MARKING WITH HAZARDOUS WASTE RESIDUE**

**14-11.07A General**

**14-11.07A(1) Summary**

Section 14-11.07 includes specifications for removing existing yellow thermoplastic and yellow painted traffic stripe and pavement marking. The residue from the removal of this material is a Department-generated hazardous waste.

Residue from removal of yellow thermoplastic and yellow painted traffic stripe and pavement marking contains lead chromate. The average lead concentration is at least 1,000 mg/kg total lead or 5 mg/l soluble lead. When applied to the roadway, the yellow thermoplastic and yellow painted traffic stripe and pavement marking contained as much as 2.6 percent lead. Residue produced from the removal of this yellow thermoplastic and yellow painted traffic stripe and pavement marking contains heavy metals in concentrations that exceed thresholds established by the Health & Safety Code and 22 CA Code of Regs. For bidding purposes, assume the residue is not regulated under the Federal Resource Conservation and Recovery Act (RCRA), 42 USC § 6901 et seq.

Work associated with disposal of hazardous waste residue regulated under RCRA as determined by test results is change order work.

Yellow thermoplastic and yellow paint may produce toxic fumes when heated.

**14-11.07A(2) Submittals**

**14-11.07A(2)(a) General**

Reserved

**14-11.07A(2)(b) Lead Compliance Plan**

Submit a lead compliance plan under section 7-1.02K(6)(j)(ii).

**14-11.07A(2)(c) Work Plan**

Submit a work plan for the removal, containment, storage, and disposal of yellow thermoplastic and yellow painted traffic stripe and pavement marking. The work plan must include:

1. Objective of the operation
2. Removal equipment
3. Procedures for removal and collection of yellow thermoplastic and yellow painted traffic stripe and pavement marking residue, including dust
4. Type of hazardous waste storage containers
5. Container storage location and how it will be secured
6. Hazardous waste sampling protocol and QA/QC requirements and procedures
7. Qualifications of sampling personnel
8. Analytical lab that will perform the analyses
9. DTSC registration certificate and CA Highway Patrol (CHP) Biennial Inspection of Terminals (BIT) Program compliance documentation of the hazardous waste hauler that will transport the hazardous waste
10. Disposal site that will accept the hazardous waste residue

The Engineer will review the work plan within 5 business days of receipt.

Do not perform work that generates hazardous waste residue until the work plan has been authorized.

Correct any rejected work plan and resubmit a corrected work plan within 5 business days of notification by the Engineer. A new review period of 5 business days will begin from date of resubmittal.

**14-11.07A(2)(d) Analytical Test Results**

Submit analytical test results of the residue from removal of yellow thermoplastic and yellow painted traffic stripe and pavement marking, including chain of custody documentation, for review and acceptance before:

1. Requesting the Engineer's signature on the waste profile requested by the disposal facility
2. Requesting the Engineer obtain an US EPA Generator Identification Number for disposal
3. Removing the residue from the site

**14-11.07A(2)(e) U.S. Environmental Protection Agency Identification Number Request**

Submit a request for the US EPA Generator Identification Number when the Engineer accepts analytical test results documenting that residue from removal of yellow thermoplastic and yellow painted traffic stripe and pavement marking is a hazardous waste.

**14-11.07A(2)(f) Disposal Documentation**

Submit documentation of proper disposal from the receiving landfill within 5 business days of residue transport from the project.

**14-11.07B Materials**

Not Used

**14-11.07C Construction**

Where grinding or other authorized methods are used to remove yellow thermoplastic and yellow painted traffic stripe and pavement marking that will produce a hazardous waste residue, immediately contain and collect the removed residue, including dust. Use a HEPA filter-equipped vacuum attachment operated concurrently with the removal operations or other equally effective approved methods for collection of the residue.

Make necessary arrangements to test the yellow thermoplastic and yellow paint hazardous waste residue as required by the disposal facility and these special provisions. Testing must include:

1. Total lead by US EPA Method 6010B
2. Total chromium by US EPA Method 6010B
3. Soluble lead by California Waste Extraction Test (CA WET)
4. Soluble chromium by CA WET
5. Soluble lead by Toxicity Characteristic Leaching Procedure (TCLP)
6. Soluble chromium by TCLP

From the first 220 gal of hazardous waste or portion thereof if less than 220 gal of hazardous waste are produced, a minimum of 4 randomly selected samples must be taken and analyzed individually. Samples must not be composited. From each additional 880 gal of hazardous waste or portion thereof if less than 880 gal are produced, a minimum of 1 additional random sample must be taken and analyzed. Use chain of custody procedures consistent with chapter 9 of US EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846) while transporting samples from the project to the laboratory. Each sample must be homogenized before analysis by the laboratory performing the analyses. A sample aliquot sufficient to cover the amount necessary for the total and the soluble analyses must then be taken. This aliquot must be homogenized a 2nd time and the total and soluble analyses run on this aliquot. The homogenization process must not include grinding of the samples. Submit the name and location of the disposal facility that will be accepting the hazardous waste and the analytical laboratory along with the testing requirements not less than 5 business days before the start of removal of yellow thermoplastic and yellow painted traffic stripe and pavement marking. The analytical laboratory must be certified by the California Department of Public Health (CDPH) Environmental Laboratory Accreditation Program (ELAP) for all analyses to be performed.

After the Engineer accepts the analytical test results, dispose of yellow thermoplastic and yellow paint hazardous waste residue at a Class 1 disposal facility located in California under the requirements of the disposal facility operator within 60 days after accumulating 220 pounds of residue and dust.

If less than 220 pounds of hazardous waste residue and dust is generated in total, dispose of it within 30 days after the start of accumulation of the residue and dust.

The Engineer will sign all manifests as the generator within 2 business days of receiving and accepting the analytical test results and receiving your request for the US EPA Generator Identification Number. Use a transporter with a current DTSC registration certificate and that is in compliance with the CHP BIT Program when transporting hazardous waste.

#### **14-11.07D Payment**

Payment for a lead compliance plan is not included in the payment for environmental stewardship work.

If analytical test results demonstrate that the residue is a non-hazardous waste and the Engineer agrees, dispose of the residue at an appropriately permitted CA Class II or CA Class III facility. The Department does not adjust payment for this disposal.

#### **Replace section 14-11.09 with:**

### **14-11.09 TREATED WOOD WASTE**

#### **14-11.09A General**

##### **14-11.09A(1) Summary**

Section 14-11.09 includes specifications for handling, storing, transporting, and disposing of treated wood waste (TWW).

Wood removed from metal beam guard railing, wooden bumpers and roadside signs is TWW. Manage TWW under 22 CA Code of Regs, Div. 4.5, Chp. 34.

##### **14-11.09A(2) Submittals**

For disposal of TWW, submit as an informational submittal a copy of each completed shipping record and weight receipt within 5 business days.

#### **14-11.09B Materials**

Not Used

#### **14-11.09C Construction**

##### **14-11.09C(1) General**

##### **14-11.09C(2) Training**

Provide training to personnel who handle TWW or may come in contact with TWW. Training must include:

1. All applicable requirements of 8 CA Code of Regs
2. Procedures for identifying and segregating TWW
3. Safe handling practices
4. Requirements of 22 CA Code of Regs, Div. 4.5, Chp. 34
5. Proper disposal methods

Maintain records of personnel training for 3 years.

##### **14-11.09C(3) Storage**

Store TWW before disposal using the following methods:

1. Elevate on blocks above a foreseeable run-on elevation and protect from precipitation for no more than 90 days.
2. Place on a containment surface or pad protected from run-on and precipitation for no more than 180 days.
3. Place in water-resistant containers designed for shipping or solid waste collection for no more than 1 year.
4. Place in a storage building as defined in 22 CA Code of Regs, Div. 4.5, Chp. 34, § 67386.6(a)(2)(C).

Prevent unauthorized access to TWW using a secured enclosure such as a locked chain link fenced area or a lockable shipping container located within the job site.

Resize and segregate TWW at a location where debris from the operation including sawdust and chips can be contained. Collect and manage the debris as TWW.

Provide water-resistant labels that comply with 22 CA Code of Regs, Div. 4.5, Chp. 34, §67386.5, to clearly mark and identify TWW and accumulation areas. Labels must include:

1. Caltrans, District number, Construction, Construction Contract number
2. District office address
3. Engineer's name, address, and telephone number
4. Contractor's contact name, address and telephone number
5. Date placed in storage

#### **14-11.09C(4) Transporting and Disposal**

Before transporting TWW, obtain an agreement from the receiving facility that the TWW will be accepted. Protect shipments of TWW from loss and exposure to precipitation. For projects with 10,000 pounds or more of TWW, request a US EPA Generator Identification Number from the Engineer at least 5 business days before the first shipment. Each shipment must be accompanied by a shipping record such as a bill of lading or invoice that includes:

1. Caltrans with district number
2. Construction Contract number
3. District office address
4. Engineer's name, address, and telephone number
5. Contractor's contact name and telephone number
6. Receiving facility name and address
7. Waste description: Treated Wood Waste with preservative type if known or unknown/mixture
8. Project location
9. Estimated quantity of shipment by weight or volume
10. Date of transport
11. Date of receipt by the receiving TWW facility
12. Weight of shipment as measured by the receiving TWW facility
13. For projects with 10,000 pounds or more of TWW include the USA EPA Generator Identification Number.

The shipping record must be at least a 4-part carbon or carbonless 8 1/2 by 11-inch form to allow retention of copies by the Engineer, transporter, and disposal facility.

Dispose of TWW at an approved TWW facility. A list of currently approved TWW facilities is available at:

<http://www.dtsc.ca.gov/HazardousWaste/upload/lanfillapr11pdated1.pdf>

Dispose of TWW within:

1. 90 days of generation if stored on blocks
2. 180 days of generation if stored on a containment surface or pad
3. 1 year of generation if stored in a water-resistant container, or within 90 days after the container is full, whichever is shorter
4. 1 year of generation if storing in a storage building as defined in 22 CA Code of Regs, Div. 4.5, Chp. 34, § 67386.6(a)(2)(C)

#### **14-11.09D Payment**

Not Used

**Replace section 14-11.10 with:**

#### **14-11.10 DISPOSAL OF ELECTRICAL EQUIPMENT REQUIRING SPECIAL HANDLING**

Ballasts and transformers that contain polychlorinated biphenyl (PCB) are designated as extremely hazardous wastes. Disposal of fluorescent light ballasts that contain PCBs must comply with 22 CA Code of Regs §§ 67426.1 et seq.

Fluorescent tubes, bulbs, and lamps, and mercury lamps are designated as universal wastes. Universal waste is a type of hazardous waste. Disposal of universal wastes must comply with 22 CA Code Regs §§ 66261.9

These wastes are Department-generated hazardous wastes. Ballasts must be packaged and transported by a hauler with a current DTSC registration certificate and documentation of compliance with the CA Highway Patrol Biennial Inspection of Terminals Program to a DTSC permitted hazardous waste disposal facility. Transport fluorescent tubes, bulbs, and lamps, and mercury lamps to an appropriately permitted facility.

**Replace section 14-11 with:**

**14-11.11 MANAGEMENT OF ASBESTOS CONTAINING MATERIALS**

**14-11.11A General**

**14-11.11A(1) Summary**

Section 14-11.11 includes specifications for surveying and sampling of asbestos-containing material (ACM). Friable ACM generated as part of this work is Department-generated hazardous waste under 14-11.02F.

**14-11.11A(2) Definitions**

**asbestos:** Includes chrysotile, amosite, crocidolite, tremolite, anthrophyllite, actinolite and any of these minerals that has been chemically treated and/or altered.

**asbestos-containing material (ACM):** Any building material, including asbestos cement pipe containing commercial asbestos in an amount greater than 1% by weight, area, or count.

**certified asbestos consultant (CAC):** An asbestos consultant certified by Cal/OSHA under 8 CA Code of Regs § 341.15 and 1529.

**friable ACM:** Any material containing more than 1 percent asbestos by area that hand pressure can crumble, pulverize or reduce to powder when dry".

**non-friable ACM:** Asbestos fibers are tightly bound into the matrix of the material and should not become an airborne hazard as long as the material remains intact and undamaged, and is not sawed, sanded, drilled or otherwise abraded during removal (Asbestos Hazard Emergency Response Act (AHERA)).

**14-11.11A(3)**

Not used

**14-11.11A(4) Submittals**

**14-11.11A(4)a Asbestos Surveying Work Plan for Sampling**

At least 60 days before starting removal or renovation, submit an asbestos inspection work plan that establishes the procedures to comply with requirements for asbestos surveying and sampling, including:

- 1. Sampling procedures.** ACM sampling methods must meet USEPA, SW-846, "Test Methods for Evaluating Solid Waste," Volume II: Field Manual, Physical/Chemical, Chapter Nine Section 9.1. Include the name of the laboratory that will perform the asbestos analyses and a copy of the laboratories ELAP certification.
- 2. Analytical method for analyses.** Samples must be analyzed for asbestos according to Analytical Method 600/R-93-116 under 40 CFR Part 763 Subpart F, Appendix A (Polarized Light Microscopy).
- 3. Sample handling and preservation.** Transport samples under chain of custody to the laboratory within 24 hours of sampling. The laboratory must test the samples within 48 hours. Submit laboratory results as soon as they are available. Supply a summary report of sampling protocols, photographs of the structures and of the locations where samples were taken, chain of custody, analysis and laboratory data sheets to the Engineer within 15 days of completion of sampling.

Do not start sampling and analysis work until the plan is authorized by the Engineer. If the plan is unacceptable, it will be returned to you within 10 business days of the submittal for revision. Revise the plan within 5 business days and resubmit. The Engineer accepts the revised plan within 5 days if revisions address all deficiencies. The Engineer has 5 days to review and authorize or reject the revised plan from the date the revised plan is received. The plan must be prepared and signed by a CAC. Sampling and analysis must comply with USEPA "Asbestos/NESHAP Regulated Asbestos Containing Materials Guidance."

Collect a minimum of 1 sample per suspected ACM location. For pipes and other linear components of suspected ACM, collect 1 sample per 5 feet of exposed material. Sample all exposed suspected ACM on the structure. Sample suspected ACM encapsulated in concrete when exposed during demolition.

#### **14-11.11(4)b Asbestos Sampling and Analysis Report**

Submit a report on the asbestos inspection within 10 days after completion of the inspection. The report must include:

1. Sampling protocols
2. Photographs of the structures and of the locations where samples were taken
3. Assessment of condition of ACM (friable/non-friable)
4. Quantification of ACM
5. Recommendations for removal and disposal of confirmed ACM.
6. Chain of Custody
7. Laboratory data
8. Documentation of Cal-OSHA Certification as a Certified Asbestos Consultant

Allow 5 business days for the Engineer to review and authorize the report. Make any changes requested for acceptance within business 5 days. Submit 4 copies of the final report.

#### **14-11.11A(4)c**

Not used

#### **14-11.11A(4)d Asbestos Compliance Plan**

Prepare an Asbestos Compliance Plan (ACP) to prevent or minimize exposure to asbestos. The ACP must be signed by a CIH before submission to the Engineer for review and authorization. Submit the ACP to the Engineer at least 15 business days before beginning work in areas containing or suspected to contain asbestos. The ACP must comply with section 7-1.01A, "Labor Code Requirements" of the Standard Specifications and contain as a minimum:

1. Identification of key personnel for the project
2. Scope of work and equipment that will be used
3. Job hazard analysis for work assignments
4. Summary of risk assessment
5. Personal protective equipment
6. Delineation of work zones on-site
7. Decontamination procedures
8. General safe work practices
9. Security measures
10. Emergency response plans
11. Worker training

#### **14-11.11A(4)e**

Not used

#### **14-11.11A(4)f Certification of Completion of Safety Training**

Submit a certification of completion of safety training for all trained personnel before starting work in areas containing or suspected to contain asbestos.

#### **14-11.11A(4)g**

Not used

#### **14-11.11A(5) Quality Control and Assurance**

##### **14-11.11A(5)a Qualifications**

The person in charge of asbestos inspection and abatement planning must be a CAC.

Laboratories used to perform asbestos analysis must be certified by the CDPH Environmental Laboratory Accreditation Program (ELAP) for all analyses to be performed.



#### **14-11.11A(5)b Regulatory Requirements**

Codes which govern removal and disposal of materials containing asbestos include:

1. CA Health and Safety Code, Division 20, Chapter 6.5, Hazardous Waste Control
2. 8 CA Code of Regs, General Industry Safety Order 5208 Asbestos
3. 8 CA Code of Reg, § 1529 and 341
4. 22 CA Code of Regs, Division 4.5
5. Cal/OSHA, Part 26 (amended), of 29 CFR
6. 40 CFR, Part 61, subpart M

#### **14-11.11B Materials**

Not used

#### **14-11.11C Construction**

##### **14-11.11C(1) Asbestos Inspection (Removal of ACM from Bridge)**

Complete an inspection to determine if ACM or suspected ACM is present within the structure at least 30 days before starting removal of ACM from bridge.

##### **14-11.11D Payment**

Not Used

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## **15 EXISTING FACILITIES**

**Replace section 15-1.03B with:**

#### **15-1.03B Residue Containing Lead from Paint and Thermoplastic**

Residue from grinding or cold planing contains lead from paint and thermoplastic. The average lead concentrations are less than 1,000 mg/kg total lead and 5 mg/L soluble lead. This residue:

1. Is a nonhazardous waste
2. Does not contain heavy metals in concentrations that exceed thresholds established by the Health and Safety Code and 22 CA Code of Regs
3. Is not regulated under the Federal Resource Conservation and Recovery Act (RCRA), 42 USC § 6901 et seq.

Submit a lead compliance plan under section 7-1.02K(6)(j)(ii).

Payment for a lead compliance plan is not included in the payment for existing facilities work.

Payment for handling, removal, and disposal of grinding or cold planing residue that is a nonhazardous waste is included in the payment for the type of removal work involved.

**Replace section 15-2.02B(3) with:**

#### **15-2.02B(3) Cold Planing Asphalt Concrete Pavement**

##### **15-2.02B(3)(a) General**

Schedule cold planing activities so that not more than 3 days elapse between the time the pavement is cold planed and the HMA is placed.

No cold planed area shall remain exposed during weekend traffic periods and Designated Legal Holidays and Special Days.

**15-2.02B(3)(a)(i) Submittals**

At least 14 days prior to cold planing submit a Debris and Dust Removal Plan.

The Debris and Dust Removal Plan must include:

1. Written description of the removal of debris and dust control during and after cold planing operation
2. The number and type of equipment
3. The time of daily use of equipment
4. Contact information of Contractor's Claim or Loss Control Agent

**15-2.02B(3)(b) Materials**

Use the same quality of HMA for temporary tapers that is used for the HMA overlay or comply with the specifications for minor HMA in section 39.

**15-2.02B(3)(c) Construction****15-2.02B(3)(c)(i) General**

Do not use a heating device to soften the pavement.

The cold planing machine must be:

1. Equipped with a cutter head width that matches the planing width. If the cutter head width is wider than the cold plane area shown, submit to the Engineer a request for using a wider cutter head. Do not cold plane unless the Engineer approves your request.
2. Equipped with automatic controls for the longitudinal grade and transverse slope of the cutter head and:
  - 2.1. If a ski device is used, it must be at least 30 feet long, rigid, and a 1-piece unit. The entire length must be used in activating the sensor.
  - 2.2. If referencing from existing pavement, the cold planing machine must be controlled by a self-contained grade reference system. The system must be used at or near the centerline of the roadway. On the adjacent pass with the cold planing machine, a joint-matching shoe may be used.
3. Equipped to effectively control dust generated by the planing operation
4. Operated so that no fumes or smoke is produced.
5. Bullet tooth tools with tungsten carbide steel cutting tips.
6. A maximum tool spacing of 1/4 inch.
7. New tools at the start of the job.

Replace broken, missing, or worn machine teeth.

**15-2.02B(3)(c)(ii) Grade Control and Surface Smoothness**

Furnish, install, and maintain grade and transverse slope references.

The depth, length, width, and shape of the cut must be as shown or as ordered. The final cut must result in a neat and uniform surface. Do not damage the remaining surface.

The completed surface of the planed asphalt concrete pavement must not vary more than 0.02 foot when measured with a 12-foot straightedge parallel with the centerline. With the straightedge at right angles to the centerline, the transverse slope of the planed surface must not vary more than 0.03 foot.

Where lanes are open to traffic, the drop-off of between adjacent lanes must not be more than 0.15 foot.

**15-2.02B(3)(c)(iii) Temporary HMA Tapers**

If a drop-off between the existing pavement and the planed area at transverse joints cannot be avoided before opening to traffic, construct a temporary HMA taper. The HMA temporary taper must be:

1. Placed to the level of the existing pavement and tapered on a slope of 30:1 (horizontal:vertical) or flatter to the level of the planed area
2. Compacted by any method that will produce a smooth riding surface

Completely remove temporary tapers before placing permanent surfacing.

**15-2.02B(3)(c)(iv) Remove Planed Material**

Remove cold planed material concurrent with planing activities so that removal does not lag more than 50 feet behind the planer.

**15-2.02B(3)(d) Payment**

Payment for removal of pavement markers, thermoplastic traffic stripe, painted traffic stripe, and pavement marking within the area of cold planing is included in the payment for cold plane asphalt concrete pavement of the types shown in the Bid Item List.

Payment for Debris and Dust Removal Plan is included in the payment for cold plane asphalt concrete pavement of the types shown in the Bid Item List.

**Replace section 15-2.02C(2) with:****15-2.02C(2) Remove Traffic Stripes and Pavement Markings Containing Lead**

Residue from removing traffic stripes and pavement markings contains lead from the paint or thermoplastic. The average lead concentrations are less than 1,000 mg/kg total lead and 5 mg/L soluble lead. This residue:

1. Is a nonhazardous waste
2. Does not contain heavy metals in concentrations that exceed thresholds established by the Health and Safety Code and 22 CA Code of Regs
3. Is not regulated under the Federal Resource Conservation and Recovery Act (RCRA), 42 USC § 6901 et seq.

Submit a lead compliance plan under section 7-1.02K(6)(j)(ii).

Payment for a lead compliance plan is not included in the payment for existing facilities work.

Payment for handling, removal, and disposal of pavement residue that is a nonhazardous waste is included in the payment for the type of removal work involved.

**Add to section 15-2.02D:**

Full compensation for removal and disposal of existing pavement markers is included in the contract items of work involved and no separate payment will be allowed therefor.

**15-2.02F Remove Asphalt Concrete Dikes**

Before removing the dike, cut the outside edge of the asphalt concrete on a neat line and to a minimum depth of 0.17 foot.

**Replace section 15-2.02I with:****15-2.02I Remove Sign Structures**

Removing overhead sign structures includes removal of:

1. Frames, braces, supports, and brackets
2. Portions of foundations
3. Sign panels
4. Mounting hardware for light fixtures
5. Walkways, safety railing, gutter
6. Electrical equipment for sign lighting
7. Hardware
8. Posts
9. Portions of foundations

Concrete foundations may be abandoned in place except that the top portion, including anchor bolts, reinforcing steel, and conduits, must be removed to a depth of not less than 3 feet below the adjacent finished grade. The resulting holes must be backfilled and compacted with material that is equivalent to the surrounding material.

Remove signs' conduit and wiring to the nearest pull box. Remove fuses within spliced connections in the pull box.

**Add the following to section 15-2.03A(1):**

Salvage the following:

1. Railing and posts from the Type 1 barrier railing

**Replace section 15-2.03A(2)(b) with:**

**15-2.03A(2)(b) Department Salvage Location**

A minimum of 2 business days before hauling salvaged material to the Department salvage storage location, notify:

1. Engineer
2. District Regional Maintenance Supervisor at telephone number (916) 375-8343

The salvage storage location is:

West Sacramento Area Cost Center 612  
1040 South River Road  
Sacramento, CA 95601

**Delete the 6th paragraph of section 15-3.01.**

**Replace the 4th paragraph in section 15-4.01A(2) with:**

Calculations for the removal plan must demonstrate the stability of the structure during each stage of removal. Include dead and live loads used in the design of protective covers.

**Add to section 15-4.01A(2):**

The Department's review time for work plans for removing specific portions of structures is shown in the following table:

Structure or portion of structure	Review time
Camellia City Viaduct (Bridge No. 24-0248R/L) Stage 1 Construction Excludes area between Bents 7 and 8	30 days
Camellia City Viaduct (Bridge No. 24-0248R/L) Stage 1 and Stage 2 Construction Between Bents 7 and 8	60 days
Camellia City Viaduct (Bridge No. 24-0248R/L) Stage 2 Construction Excludes area between Bents 7 and 8	30 days

**Add to section 15-4.01C(1):**

Remove the following portions of the bridge as shown:

Bridge no.	Description of work
Camellia City Viaduct (Widen/Br Rehab) (Br No 24-0248R/L)	<p>1. Type 1 barrier railing concrete parapet and end blocks. Salvage metal bridge railing and posts.</p> <p>2. Upper portion of the concrete wall 3 feet below finished grade at Abutments 1 and 26 medians,</p> <p>3. Concrete for temporary interior girder openings.</p> <p>4. Concrete medians and noses, and , Type 1 barrier railing concrete parapet and end blocks for the "H1", "H2" and "V4" Lines as shown. Remove anchor bolts 1" below existing concrete deck surface for the "H1" line sign post. Salvage metal bridge railing and posts.</p> <p>5. Using a power-driven saw, sawcut approximately 1" deep cut made to a true line along the limits of removal for deck drain reconstruction work. Remove concrete encasing existing deck drain and concrete to allow installation of new deck drain system.</p> <p>Remove deck drain collector boxes and a portion of the pipe extenders. Grind edges of existing pipe extension smooth. Clean and paint cut surface areas as specified section 75-2.05.</p> <p>Remove all loose and unsound concrete. Abrasive blast clean rebar and exposed concrete surfaces and flush with water conforming with section 51-1.03D(4),</p> <p>6. Remove rebar 1" below existing concrete deck surface. Abrasive blast clean and fill holes with rapid setting concrete as specified in section 15-5.02.</p>

Work plan for implementation of (a) bridge removal (portion) work, (b) bridge deck widening and deck rehabilitation work and (c) barrier reconstruction work during the two 30-day full-width bridge closures under section 51-1.01A must incorporate the bridge removal (portion) work noted herein.

**Add to the list in the 1st paragraph in section 15-4.01C(2)(b):**

6. Falsework or supports for protective covers must not extend below the vertical clearance level or to the ground line at any location within the roadbed.

**Replace item 9 in the list in the 5th paragraph of section 15-5.01C(1):**

9. New tooth tools at the start of the work and replace as necessary to perform the work satisfactorily.

**Add to section 15-5.01C(1):**

Remove any unsound concrete under section 15-5.01C(5) and place any rapid setting concrete patches under section 15-5.02. This is change order work.

Remove approximately 1/4 inch of the portland cement concrete deck surface by using:

Sweep the deck surface clean and remove all loose rocks, debris and materials from the portland cement concrete deck surface before re-opening to public traffic.

1. Remove unsound concrete under section 15-5.01C(5)
2. Abrasive blast clean the deck surface
3. Sweep the deck surface
4. Blow the deck surface clean using high-pressure air
5. Immediately before placing the fiber-reinforced portland cement concrete overlay, abrasive blast clean the cold-milled deck contact surfaces of existing concrete and reinforcing steel to remove foreign materials, and blow the deck surface clean using high-pressure air.

Holes for pressure grouted dowels must be 1/2 inch larger than the nominal dowel diameter.

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Asphalt binder used in HMA Type A must be PG 64-16.

Aggregate used in HMA Type A must comply with the 3/4-inch HMA Types A and B gradation.

Do not leave a vertical joint more than 0.15 foot high between adjacent lanes open to traffic or within lanes open to traffic.

Place shoulder conform tapers concurrently with the adjacent lane's paving.

Place additional HMA along the pavement's edge to conform to road connections and driveways. Hand rake, if necessary, and compact the additional HMA to form a smooth conform taper.

The bid item for place hot mix asphalt (miscellaneous area) is limited to the areas shown and is in addition to the bid items for the materials involved.

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## 41 CONCRETE PAVEMENT REPAIR

**Replace section 41-9.01D(6)(c) with:**

RSC pavement must develop a minimum modulus of rupture of 400 psi at opening age. RSC pavement must develop a minimum modulus of rupture of 600 psi 7 days after placement. The Engineer may accept RSC pavement that does not attain the specified modulus of rupture under section 40-9.04B. Fabricate and test 3 beam specimens, in the presence of the Engineer, under California Test 524 (except beam specimens may be fabricated using an internal vibrator under ASTM C 31).

The Engineer determines the modulus of rupture by averaging the test results. No single test represents more than that day's production or 130 cubic yards, whichever is less. Fabricate test beams for the Engineer to determine the modulus of rupture at other ages using beams cured and tested under California Test 524 except the Engineer places them in sand from 5 to 10 times the final set time or 24 hours, whichever is earlier.

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## DIVISION VI STRUCTURES

## 48 TEMPORARY STRUCTURES

**Add to section 48-2.01C(2):**

The review time for shop drawings for specific structures or portions of structures is shown in the following table:

Structure or portion of structure	Total review time
Camellia City Viaduct (Bridge No. 24-0248R/L) Stage 1 Construction Excludes area between Bents 7 and 8	30 days
Camellia City Viaduct (Bridge No. 24-0248R/L) Stage 1 and Stage 2 Construction Between Bents 7 and 8	60 days
Camellia City Viaduct (Bridge No. 24-0248R/L) Stage 2 Construction Excludes area between Bents 7 and 8	30 days

**Replace "Reserved" in section 48-6 with:  
48-6 TEMPORARY WOOD POLES**

**48-6.01 GENERAL**

**48-6.01A Summary**

Section 48-6 includes specifications for constructing, maintaining, and removing temporary wood poles for the support of electrical hardware.

**48-6.01B Definitions**

**temporary wood pole:** Round timber pole and any attached structural components with no more than five years of anticipated service before removal or replacement.

**Overhead conductor:** A conductor or cable supported overhead.

**Overhead bundle:** An assembly consisting of a messenger wire, one or more overhead conductors, and one or more lashing wires.

**48-6.01C Submittals**

**48-6.01C(1) General**

Submit a letter of certification that certifies all components of the manufactured assemblies are used in compliance with the manufacturer's recommendations. If requested, (1) submit manufacturer's data for manufactured assemblies to verify manufacturer's recommendations or (2) perform tests demonstrating adequacy of the proposed assemblies.

Submit a letter of certification for all temporary structural support members with field welded splices. The letter must certify that all welding and NDT, including visual inspection, comply with the Contract and the welding standard shown on the shop drawings. The letter must be signed by an engineer who is registered as a civil engineer in the State. Submit the letter before installing messenger wires, tether wires, or luminaire arms.

Submit a welding certification for temporary structural support members with previously welded splices. The certification must:

1. Itemize the testing and inspection methods used
2. Include tracking and identifying documents for previously welded members
3. Be signed by an engineer who is registered as a civil engineer in the State
4. Be submitted before erecting the members



#### **48-6.01C(2) Guy Wire Anchors**

Submit the guy wire anchor manufacturer's product information and installation instructions. Do not install anchors unless authorized.

#### **48-6.01D Quality Control and Assurance**

##### **48-6.01D(1) General**

Reserved

##### **48-6.01D(2) Welding and Nondestructive Testing**

Welding must comply with AWS D1.1 or other recognized welding standard except (1) for previously welded splices and (2) if fillet welds are used where load demands are 1,000 lb or less per inch for each 1/8 inch of fillet weld.

Perform NDT on splices made by field welding at the job site. You may use UT or RT. Each field weld and any repair made to a previously welded splice must be tested. You must select locations for testing. The length of a splice weld where NDT is to be performed must be a cumulative weld length equal to 25 percent of the original splice weld length. The cover pass must be ground smooth at test locations. Acceptance criteria must comply with the specifications for cyclically loaded nontubular connections subject to tensile stress in clause 6 of AWS D1.1. If repairs are required in a portion of the weld, perform additional NDT on the repaired sections. The NDT method chosen must be used for an entire splice evaluation, including any repairs.

For previously welded splices, you must determine and perform all necessary testing and inspection required to certify the ability of the temporary structural support members to sustain the design stresses.

#### **48-6.02 MATERIALS**

##### **48-6.02A General**

Wire used for messenger wires, tether wires, and guy wires, must comply with ASTM A475, Utilities Grade, 7-wire strand.

Weights and diameters of overhead conductors must not exceed those shown by more than 5%.

Connection hardware for wires must provide termination efficiency factor of not less than 0.80.

Wood poles, push braces, and stubs must comply with Alliance for Telecommunications Industry Solutions O5.1.

Treat wood under AWP A U1, Use Category UC4B, Commodity Specification D.

Other steel components must comply with section 86.

##### **48-6.02B Helical Anchors, Expanded Steel Plate Anchors, Cross Plate Anchors, and Expanding Rock Anchors**

Fabricate helical anchors, expanded steel plate anchors, and cross plate anchors under section 55.

Fabricate attachable thimble eyes and expanding rock anchors from suitable ferrous material.

Welding must comply with AWS D1.1.

Fabricate as a continuous piece or as separate segments with mechanical connections between segments. Include integral thimble eye or include attachable thimble eye.

Galvanize all helical anchor parts under section 75.

Paint expanded steel plate anchors, cross plate anchors, and expanding rock anchors as specified for repairing damaged galvanized surfaces in section 75-1.05.

The final assembly must have (1) a minimum ultimate tension strength greater than the minimum required breaking strength of the guy wire and (2) a minimum ultimate torsion strength greater than twice the minimum installation torque.

#### **48-6.02C Reuse of Materials and Relocation of Temporary Supports**

You may reuse structural components and relocate temporary supports provided that the materials remain in acceptable condition for reuse except do not reuse:

1. Components of galvanized high-strength-bolt assemblies that have been or are required to be tensioned past snug tight
2. Galvanized high-strength cap-screws that have been or are required to be tensioned past snug tight
3. Tension control bolts

#### **48-6.03 CONSTRUCTION**

##### **48-6.03A General**

Install construction bracing as necessary to withstand all imposed loads during erection, construction, and removal of any temporary structural supports.

Install Type K temporary railing on both sides of vehicular openings through temporary structural supports. The Engineer may order you to install temporary railing at other temporary structural supports less than 12 feet from the edge of a traffic lane.

Install all temporary railing protecting temporary structural supports before erecting temporary structural supports. Do not remove temporary railing until authorized.

For overhead line construction not specifically covered in the contract documents, comply with Public Utility Commission General Order No. 95

##### **48-6.03B Foundations**

Verify the design soil parameters before starting construction of temporary wood poles.

Remove any accumulated water from the pole excavation prior to placing granular backfill at the bottom of the pole excavation. Thoroughly compact and level the granular backfill at the bottom of pole excavation prior to setting pole.

Backfill around poles with manufactured sand that is free of rocks or other deleterious material. Place the backfill material in 4-inch thick layers. Moisten and thoroughly compact each layer.

Install required pull boxes at least 2 feet clear from face of pole.

Remove accumulated water from the anchor excavation prior to placing expanded steel anchor. Expand the base of the expanded steel anchor prior to placing backfill. Place backfill around expanded steel anchor in 4-inch thick layers. Thoroughly compact each layer.

Protect foundations from softening and undermining.

##### **48-6.03C Erection**

If temporary structural supports are over or adjacent to roadways or railroads, all details of the temporary structural support system that contribute to horizontal stability and resistance to impact, except for connections in bracing, must (1) be installed at the time each element of the temporary structural support is erected and (2) remain in place until the temporary structural support is removed.

Suspend overhead conductors from messenger wire by continuous lashing wire. No spare overhead conductors are allowed unless described. Sag the overhead bundles to maintain required clearances and sags over the temperature range of -30 degrees F to 120 degrees F. Required sag is between 4.6 percent and 5.4 of horizontal span unless shown otherwise. Minimum vertical clearance over grade is 25 feet unless shown otherwise. Sag tether wires to maintain approximately uniform separation from their overhead bundles.

##### **48-6.03D Attachments**

If specific connection details are not shown, mount attachments under the manufacturer's written instructions and such that there is no loss of structural component cross section.

#### **48-6.03E Damping**

If at any time during service, the temporary wood poles exhibit excessive vibration, immediately install dampers. Dampers must be effective in mitigating the vibration and must not compromise the temporary wood poles or the supported hardware.

#### **48-6.03F Removal**

Remove temporary wood poles such that portions not yet removed remain stable at all times.

Remove temporary wood poles and helical anchors. Fill the void with excavated material or sand that is free of deleterious material. Place the backfill material in 4-inch thick layers. Moisten and thoroughly compact each layer.

Dispose of surplus excavated material uniformly along the adjacent roadway.

Dispose of temporary structural support materials and work debris.

#### **48-6.03G Guy Wire Helical Anchors**

##### **48-6.03G(1) General**

Reserved

##### **48-6.03G(2) Installation Parameters**

Use the minimum installation torque shown. You may request an alternative minimum installation torque based on a revised value for empirical torque factor.

For alternative minimum installation torque, use the following equation to calculate the installation torque:

$$T = Q_a(FS/K_t)$$

where:

$T$  = Minimum installation torque, lb-ft

$FS$  = Factor of safety of 2.0

$Q_a$  = Minimum allowable tension capacity shown, lb

$K_t$  = Empirical torque factor, 1/ft (inverse foot)

Include a geotechnical report sealed by a licensed geotechnical engineer with recommended values for empirical torque factor and alternative minimum installation torque with your request.

Do not start installation unless your alternative installation parameters are authorized.

Verify the installation parameters before the start of anchor installation.

##### **48-6.03G(3) Installation**

Install under the anchor manufacturer's written instructions and:

1. Do not install anchors underneath utilities or subsurface structures.
2. Maintain horizontal clearances as required by the Engineer.
3. Install to the minimum embedment length.
4. Continuously monitor and record torque during installation. If torque at the minimum embedment length is not equal to or greater than the minimum required, continue installation to greater embedment until the minimum installation torque is achieved for 2 continuous feet.

##### **48-6.03G(4) Removal**

After service is complete, remove using reverse torque. Fill the space left behind with excavated material or sand free of deleterious materials. Place the backfill material in 4-inch thick layers. Moisten and thoroughly compact each layer.

#### **48-6.03H Expanded Steel Plate Anchors, Cross Plate Anchors, and Expanding Rock Anchors**

##### **48-6.03H(1) General**

Reserved.

#### 48-6.03H(2) Installation

Install anchors in compliance with the manufacturer's instructions.

Locate and mark all substructures and utilities. Do not install anchors underneath subsurface utilities or structures.

#### 48-6.03H(3) Removal

After service is complete, remove anchors to a depth of at least 3 feet below finished grade. Fill the space left behind with sand free of deleterious materials. Place the backfill material in 4-inch thick layers. Moisten and thoroughly compact each layer.

#### 48-6.04 PAYMENT

Payment for providing temporary wood poles is included in the payment for the electrical bid item involved.

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### 51 CONCRETE STRUCTURES

#### Add to section 51-1.01A under paragraph 1:

Concrete is structural concrete, bridge for:

Bridge no.	Description of work
Camillia City Viaduct (Br No 24-0248R/L)	1 Sign pedestal at bent cap 2. Concrete to fill temporary interior girder openings 3. Base of concrete barrier (Type 732) on top of retaining walls 4. Base of concrete barrier (Typer 732 Modified) on top of wingwalls

Structural concrete, bridge also includes:

Bridge no.	Description of work
Camillia City Viaduct (Br No 24-0248R/L)	1. Furnishing and placing polyvinyl chloride (PVC) sleeves around existing rod restrainers. 2. Roughening existing concrete surfaces to a full amplitude of approximately 1/4-inch by abrasive blasting, water blasting, or mechanical equipment. 3. An optional cored hole may be placed through the deck to accommodate the placement of the interior sign pedestal anchorages.

Concrete is structural concrete, fiber-reinforced portland cement concrete (PCC) overlay for the following portion of the bridge and must comply with section 51-8:

Bridge no.	Description of work
Camillia City Viaduct (Br No 24-0248R/L)	1. Work plan for implementation of deck rehabilitation work 2. Furnishing, placing, removal and disposal of fiber-reinforced portland cement concrete trial overlay 3. Overlay 4. Grooving and grinding deck overlay surface texture to comply with 51-1.03F(5)(b)

Concrete is structural concrete, bridge (modified) for:

Bridge no.	Description of work
Camillia City Viaduct (Br No 24-0248R/L)	1. Work plan for implementation of bridge deck widening and overhang work 2. Bridge widening 3. Bridge overhang 4. Concrete encasing the bridge deck drainage system 5. Grooving and grinding deck overlay surface texture to comply with 51-1.03F(5)(b)

Structural concrete, bridge (modified) must be prequalified before placement under requirements from prequalification of concrete by compressive strength in section 90-1.01D(5).

Shrinkage requirements in section 90-1.02A must be used for structural concrete, bridge (modified).

Submit at least 30 days before placing the bridge widening and deck overhang. Include in the submittal:

1. Concrete mix design and certified test data
2. Trial batch test reports
3. Concrete placement shop drawings

The concrete mix design used for the bridge widening and overhang is to be the same concrete mix design used to construct the reinforced Type 732 modified, Type 732 and Type 732B concrete barriers.

Perform the following tests and grinding and grooving for bridge deck surface textures for bridge decks and bridge deck overlays in this order:

1. Surface smoothness test of the existing deck surface and shoulders (after cold-milling work) and existing approach slabs
2. Surface smoothness test of the new deck surface, shoulders and approach slabs after new approach slabs, overlay and widening are placed
3. Surface crack intensity must comply with section 51-1.01D(4)(d) for new bridge decks
4. Grinding and grooving of bridge decks and approach slabs for bridge deck surface texture must comply with section 51-1.03F(5)(b)
5. Skid tests for coefficient of friction must comply with section 51-1.01D(4)(c) for new bridge decks and new approach slabs

**Replace the 2nd paragraph of section 51-1.01D(4)(b) with:**

Schedule smoothness testing of the existing deck and approach slab surfaces 3 days in advance of performing deck cold-milling work. Immediately after deck cold-milling and cleaning work and before the 30-day bridge closure, allow 4 hours for the Engineer to perform smoothness testing.

Schedule smoothness testing of the new deck, shoulders and approach slab surfaces 1 day in advance. Allow 4 hours for the Engineer to perform smoothness testing for all 6 lanes at one time.

**Add after the 1st paragraph of section 51-1.01D(4)(d) with:**

Schedule surface crack testing of the new deck surface 1 day in advance. Allow 4 hours for the Engineer to measure the crack intensity of new deck surfaces.

**Add after the 1st paragraph of section 51-1.01D(4)(c) with:**

Schedule skid testing of the new deck and approach slab surfaces 1 day in advance. Allow 24 hours for the Engineer to complete the skid tests for all 6 complete lanes at one time or 4 hours to complete the skid test for one complete lane.

Designated staged bridge work shown for the 30-day full-width road closure consists of:

1. Bridge removal (portion) work
2. Bridge deck widening and overhang
3. Extend and modify bridge deck drains
4. Approach slab replacement
5. Deck rehabilitation
6. Median and nose replacement work between ramps and mainline
7. Barrier replacement
8. Joint seal replacement
9. Other

Perform the designated staged bridge work shown during the first 30-day full-width bridge closure on EB 50 between Abutment 1 and Abutment 26 (between 18th to 24th Street).

Perform the designated staged bridge work shown during the second 30-day full-width bridge closure on WB 50 between Abutment 1 and Abutment 26 (between 18th to 24th Street).

Have the necessary materials, equipment and other resources for the designated staged bridge work shown, on site before the beginning of each 30-day full-width bridge closure.

Submit a preliminary detailed work plan for implementation of each 30-day full-width road closure, completion of designated staged bridge work and opening the bridge to traffic within 14 days after contract approval. Submit the final work plan, for authorization by the Engineer, no less than 60 days before the first 30-day full-width bridge closure. The Engineer reviews the work plans within 15 days and accepts, rejects or accepts with comments.

**Add to section 51-1.01C(6) Work Plan for Implementation of Designated Staged Bridge Work:**

Meet with the Engineer to discuss and submit a work plan for implementation of the designated staged bridge work shown including detailed procedures, sequences and all features required to perform and complete said work in a safe and controlled manner during each 30-day full-width bridge closure. Include the following for each 30-day full-width bridge closure:

1. Methods, construction sequences and timelines in one hour increments, from the beginning to the end of the noted various types of work to be performed, and the length of time to complete each operation.
2. Traffic flow and movement of workers, equipment and materials.
3. Identify type, model number, weight, and equipment list to be used for the various operations (including reaches of equipment) and provide layouts for these operations located on and below the bridge.
4. Detail all equipment, materials, manpower, and work necessary to close the bridge to traffic, perform the designated bridge work shown and open the bridge to traffic.
5. Methods to achieve the water cure. Method to apply curing compound and designate full set-up times for different ambient conditions.

6. After the new deck overlay and shoulders are placed, provide timelines to:
  - 6.1. Prepare and clean deck surface for testing of roadway surface
  - 6.2. Complete the testing of roadway surface by the Engineer
  - 6.3. Take corrective measures of grinding to comply with section 42 and treating deck with methacrylate
  - 6.4. Grind and groove deck and approach slab surfaces to comply with section 51-1.03F(5)(b).
7. Contingency plan for equipment and/or material failures and/or a delay in concrete delivery or placement.
8. Locate construction joints for deck overlays and bridge deck widenings in a layout view. Provide details for the deck construction joints for deck overlays.

Submit and complete the following before performing designated bridge work shown for the 30-day bridge closure:

1. Shop plans with supporting calculations for falsework, formwork and protective covers for bridge work.
2. Bridge removal work plans,
3. Concrete mix design, certified test data, and trial batch reports. Deck placement work plans.
4. The Department must have accepted the following bridge materials:
  - 4.1. Deck drain elements
  - 4.2. Bar reinforcing steel
  - 4.3. Fibers
  - 4.4. Chain link railing
  - 4.5. Joint seal adhesives and sealants
  - 4.6. Type B joint seals
  - 4.7. Other as requested by the Engineer
5. Placed and evaluated trial overlay,
6. Acceptable work plan for implementation of the 30-day full-width road closure for designated staged bridge work ,
7. Listing of all preliminary work to be performed before the 30-day road closure and authorized by the Engineer.

**Add to section 51-1.02A:**

Concrete for the structural concrete, bridge (modified) work as shown must comply with the following:

1. Continuous wet method cure for at least 3 days and achieve a minimum compressive strength of 3250 psi before opening to traffic. Apply curing compound upon removal of the wet curing medium.
2. Not allow use of RSC
3. A reduced wet cure time will not be considered
4. No Type C accelerating admixture
5. No Type III portland cement
6. No accelerated concrete mix components

**Add 2 rows to the table in the 1st paragraph of section 51-1.02B:**

Bridge deck widening and overhang concrete	675 min, 800 max
Bridge deck fiber-reinforced portland cement concrete overlay	675 min, 800 max

**Replace the 1st two paragraphs in section 51-1.03B with:**

Vehicles weighing over 1,000 lb are not allowed on any bridge span until the concrete attains a compressive strength of at least 2,400 psi. Vehicles weighing over 4,000 lb are not allowed on any span until the concrete attains a compressive strength of at least 3,250 psi.

Vehicles exceeding the weight limitations in Veh Code Div 15 that cross bridges as allowed in section 5-1.37B must not make repetitive crossings of any span until the concrete attains a compressive strength of at least 3,600 psi.

**Replace the 2nd paragraph of section 51-1.03H with:**

Cure the top surface of bridge decks and deck overlays using first the water method for at least the minimum designated time below and then the curing compound method. Water for curing must comply with section 90-1.02D. The curing compound must comply with section 90-1.01D(6) and be curing compound no. 1.

Curing the bridge concrete deck surface, including deck and deck overlay surfaces, must comply with the following:

1. During the initial curing period (between placement and finishing), direct mist atomized water spray of sufficient velocity to reach exterior edges and at a rate not to disturb the fresh concrete surface. Continue misting as necessary to maintain reflective appearance of damp concrete. Do not allow the surface to dry or to undergo cycle of drying or wetting.
2. Immediately after finishing concrete surface, cure the top surface of the deck using the water method to comply with section 90-1.03B(2). Continue misting until placement of the curing medium.
3. Place curing medium as soon as possible without disturbing the surface.
4. Water cure for a minimum 3 days (72 hours) beginning after the end of discharge of the last truckload.
5. At the end of the water curing period, remove the curing medium, remove freestanding water, and apply curing compound to the bridge deck surface to comply with section 90-1.03B(3). Mist may be used to keep deck moist before the compound is applied.
6. Allow the compound to fully set up. . The deck surface must be water-cured for a minimum of 3 days (72 hours), achieve a compressive strength of 3250 psi, and the curing compound be fully set before directly opening up to traffic.

Placing, finishing and curing the concrete barrier surface must comply with section 83-1.02F: The lighting standards must be placed at the designated compressive strength shown on the work plan for implementation for barrier replacement work.

**Add to section 51-2.02A:**

Joint seals for movement ratings of 2" must be Type B joint seals.

**Replace the 1st paragraph in section 51-1.03F(5)(b)(i) with:**

Camillia City Viaduct (Bridge No. 24-0248R/L) is located in a noise sensitive area.

Texture the bridge deck fiber-reinforced PCC overlay and approach slab surfaces longitudinally by grinding and grooving.

**Add under paragraph 1 in section 51-1.04with:**

Payment for optional coring and filling holes with concrete and roughening existing concrete surfaces to minimum 1/4" amplitude is included in the payment for structural concrete, bridge.

**Add under paragraph 1 in section 51-1.04with:**

Payment for longitudinal grinding and grooving of the bridge deck and approach slab surfaces is included in the payment for structural concrete, bridge (modified) and structural concrete, approach slab (Type R).

**Add under paragraph 1 in section 51-1.04with:**

Payment for bonding dowels for the B3 curb is included in the payment for drill and bond dowel. Payment for furnishing dowels for the B3 curb is included in the payment for minor concrete (miscellaneous construction).

**Add under paragraph 1 in section 51-1.04with:**

Structural concrete, bridge (modified) is measured by the cubic yard.



**Add section 51-8 with:**

**51-8 BRIDGE DECK FIBER-REINFORCED PORTLAND CEMENT CONCRETE OVERLAY**

**51-8.01 GENERAL**

**51-8.01A Summary**

Section 51-8 includes specifications for designing, placing and curing a fiber-reinforced portland cement concrete overlay to an existing bridge deck with an accelerated compressive strength and set-up time that must comply with the specifications in section 51 and section 90 and the specifications herein.

Shrinkage requirements in section 90-1.02A must be used for the bridge deck fiber-reinforced portland cement concrete overlay.

Work plan for implementation of designated bridge work shown during the two 30-day full-width bridge closures under section 51-1.01A must incorporate the work for the fiber-reinforced portland cement concrete overlay.

**51-8.01B Definitions**

Reserved

**51-8.01C Submittals**

**51-8.01C(1) General**

Submit at least 15 days before placing fiber-reinforced PCC trial overlay. Include in the submittal:

1. Fiber-reinforced PCC overlay mix design and placement procedures
2. Trial batch test report
3. Details and placement procedures for the trial overlays
4. Test samples and test results from the trial overlays

Submit a work plan at least 15 days before use of deck fiber-reinforced PCC overlay placement. The plan:

1. Schedule and sequencing of fiber-reinforced PCC overlay work and testing for each stage of bridge deck overlay work
2. Method for isolating expansion joints
3. Selection of a limiting temperature in concrete or the expected jobsite high temperature. Verify in trial batches
4. Method for disposal of excess fiber-reinforced PCC
5. Provide the minimum days/hours for heat dissipation after the maximum concrete temperature is reached
6. Anticipated atmospheric and temperature conditions during placement and curing operations
- 7.. Additional precautions and procedures to be taken to minimize adverse effects of hot-weather concreting. Describe types of protection and additional efforts to be taken to prevent moisture loss.
8. Special measures to be taken for protection and curing of strength test specimens in hot weather to maintain specimens at a temperature of 60 to 80 degrees F and to prevent moisture loss during initial curing process.
9. Special measures to be taken to achieve maximum 80 degrees F fiber-reinforced concrete temperature at time of placement.
10. Locate construction joints
11. Details for repairing fiber-reinforced PCC overlay in the wet condition and the dry condition.

Refer to ACI 544.1R or obtain from the fiber manufacturer adequate mixing techniques to achieve uniform mixtures, adequate placing techniques to assure adequate compaction and adequate finishing techniques to assure satisfactory surface textures.

**51-8.01C(2) Product Data**

Submit the manufacturer's descriptive and technical literature for fibers.

**51-8.01C(2) Certificate of Compliance**

Submit a certificate of compliance for the fibers.

### **51-8.01C(3) Manufacturer's Instructions**

At least 15 days before trial slab submit manufacturer's instructions for:

1. Type of fibers to be used.
2. Method for storage and handling of fibers
3. Description of equipment or suitable techniques for measuring and dispensing the fibers into the mixer free of fiber balls.
4. Truck mixing
5. Method for pumping, placing and finishing
6. Method to remove and repair defects

### **51-8.01D Quality Control and Assurance**

#### **51-8.01D(1) General**

Overlay concrete must be prequalified before placement of trial overlay under requirements for prequalification of concrete by compressive strength in section 90-1.01D(5) compressive strength.

An engineer who is registered as a civil engineer in the State must:

1. Inspect and record the following information at frequent intervals
2. Be present during bridge deck fiber-reinforced PCC overlay activities
3. Provide daily progress reports

Records must contain the following information at frequent intervals

1. Air temperature
2. Concrete temperature
3. General weather conditions
4. Wind velocity
5. Relative humidity rate (See Table Hot Weather Concrete ACI 305 R-5 to determine rate of evaporation)
6. All HRWRs added to the mixture at the site with corresponding mixing times
7. Time batched, time discharge started and time discharge completed
8. Concrete temperature at time of discharge
9. Observations on the performance and appearance of concrete as delivered and after placement:
  - 9.1. Slump of concrete as discharged
  - 9.2. Protection and curing per segment
    - 9.3.1. Method
    - 9.3.2. Time of application
    - 9.3.3. Rate of application
    - 9.3.4. Visual appearance

#### **51-8.01D(2) Preconstruction Meetings for Trial Overlay**

Schedule and hold a preconstruction meeting for trial overlay construction. The preconstruction must be (1) at least 25 business days after submitting the fiber-reinforced PCC overlay work plan and fiber-reinforced PCC overlay mix design and placement procedure, and (2) at least 15 days before the start of fiber-reinforced PCC trial overlay construction. You must provide a facility for the meeting.

The meetings must include the Engineer, your representatives, fiber manufacturer representative and concrete supplier, and any subcontractors involved in fiber-reinforced PCC overlay construction.

The purpose of this meeting is to:

1. Establish contacts and communication protocol between you and your representatives, any subcontractors, fiber manufacturer representative, concrete supplier and the Engineer
2. Review the construction process, acceptance testing, curing, surface textured and repair of fiber-reinforced PCC overlay

3. Make recommendations to make adjustments in mixture proportions at the time to help obtain a workable mixture at a low water-cementitious material ratio. Additional batches may be necessary to verify mixture adjustments and mixing efficiency. Note if fibers are dispersed uniformly throughout mixture. Reducing batch size or increasing the mixing time, or both, may be necessary if a uniform dispersion does not result.

The Engineer will conduct the meeting. Be prepared to discuss the following:

1. Overlay placement work plan
2. Preliminary work for overlay performed prior to road closure
3. Timeline and critical path activities
4. Safety requirements, including Cal/OSHA

#### **51-8.01D(3) Concrete Test Batch**

Concrete test batches are to be performed before the trial overlay.

#### **51-8.01D(4) Trial Overlay**

Complete a trial overlay before starting production overlay activities. The trial overlay must be constructed, finished, cured and surface textured within the allowed time with the materials, tools, equipment, personnel, and methods to be used in the production work.

The trial overlay must:

1. Be at least 24 feet wide by 50 feet long or as otherwise determined by the Engineer and the same thickness as the project overlay
2. Be constructed on a prepared concrete base
3. Be placed within the project limits at an authorized location
4. Be constructed using the same equipment as the production work
5. Replicate field conditions for the production work
6. Be used to determine the initial fiber-reinforced portland cement concrete set time
7. Demonstrate suitability of the proposed means and methods

Trial overlays must demonstrate that you are capable of producing fiber-reinforced overlays within the anticipated time periods, including delivery, placement, finishing, and curing times, and under similar atmospheric and temperature conditions expected during construction operations. Multiple trial slabs for each concrete mix design may be required to encompass variable atmospheric conditions.

Test the trial overlay concrete for compressive strength under section 90-1.01D(5) at 24 hours, 2 days, 3 days, 7 days, and 28 days. Trial slab concrete must develop the following minimum compressive strengths:

1. 3250 psi at 3 days
2. 4,000 psi at 28 days

The Engineer determines acceptability of the trial overlay.

Dispose of the trial overlay and concrete base after acceptance.

#### **51-8.01D(2) Acceptance Criteria for the Trial Overlay**

Important factors preventing plastic shrinkage cracking in the bridge deck fiber-reinforced PCC overlay must conform to the following:

1. Most important factor affecting plastic shrinkage is surface evaporation rate. The maximum rate of surface evaporation is based on air temperature, relative humidity, concrete temperature, and wind velocity. The maximum rate of surface evaporation allowed is 0.2 lb/sqft/hr. When evaporation rate is expected to approach 0.2 lb/sqft/hr precautions must be taken.
2. Protect concrete from rapid temperature drops - not to exceed 5 degrees F per hour or more than 50 degrees F in 24 hours.
3. Temperature of the curing water must not be lower than 20 degrees F cooler than the surface temperature of the concrete at the time the water and concrete come into contact.

Refer to ACI 305R-91 section 5.1.3 for a method to determine the evaporation rate.

## **51-8.02 MATERIALS**

### **51-8.02A General**

Fiber-reinforced portland cement concrete consists of portland cement concrete with fibers.

#### **51-8.02A(1) Concrete**

Concrete for bridge deck fiber-reinforced portland cement concrete (PCC) overlay must comply with the following:

1. Continuous wet method cure for at least 3 days (72 hours) and achieve a minimum compressive strength of 3250 psi before opening to traffic. Apply curing compound upon removal of the wet curing medium.
2. Not allow use of RSC
3. A reduced wet cure time will not be considered
4. No Type C accelerating admixture
5. No Type III portland cement.
6. No accelerated concrete mix components

#### **51-8.02A(2) Aggregate Gradings**

The percent of fine to coarse aggregate must be in the range of 40 to 55 percent and must not exceed 55 percent.

#### **51-8.02A(3) Combined Aggregate Grading**

For the fiber-reinforced PCC overlay use the 1" maximum combined aggregate grading complying with section 90-1.02C(4)(d).

**51-8.02A(4) Fibers** Fibers must be selected which will both control plastic shrinkage cracking and improve concrete's long term performance.

Fibers for fiber-reinforced portland cement concrete must comply with the requirements of ASTM C1116/C 1116M; Sec. 4.1.3 - Type III Synthetic Fiber-Reinforced Concrete.. In addition, the fiber reinforced pcc must meet the shrinkage requirements in section 90-1.02A.

Fibers for fiber-reinforced concrete must comply with the following:

1. Fibers for fiber-reinforced portland cement concrete must comply with the requirements of ASTM C1116/C 1116M; Paragraph 4.1.3 - Type III Synthetic Fiber-Reinforced Concrete.
2. Fiber reinforcement must be added to the concrete truck at the ready mix plant when coarse aggregate is added or as otherwise indicated by the fiber manufacturer
3. Fibers used must be as shown in the tables below.
4. Do not add additional water to the concrete truck after it leaves the ready-mix plant or finish water to the fiber-reinforced PCC
5. Fiber-reinforced PCC during placement must not exceed 80 degrees F
6. Physical Property Requirements for the fibers are:

**Fiber Reinforced Mix Design Requirements**  
**Fiber Material: Synthetic Micro Fiber**  
**Reinforcement**

Property	Requirement
Fiber Length (Normal)	Minimum 3/4 inch
Minimum Tensile Strength	90 ksi
Modulus of Elasticity	Minimum 1.2 ksi
Melt Point	320 °F
Chemical Resistance	Excellent
Alkali, Acid and Salt Resistance	High
Ignition Point	1090 °F
Absorption	Maximum 10% by weight
Specific Gravity	0.91
Dosage (Normal)	As recommended by the manufacturer to effectively mitigate plastic shrinkage
Form (Material)	Monofilament Polypropylene fibers

NOTE:

**Fiber Reinforced Mix Design Requirements**  
**Fiber Material: Synthetic Macro Fiber**  
**Reinforcement**

Property	Requirement
Fiber Length (Normal)	Minimum 1.38 inches (35 mm) Max length 2.00 inches (50 mm)
Minimum Tensile Strength	90 ksi
Modulus of Elasticity	Minimum 1.378 ksi
Melt Point	320 °F
Chemical Resistance	Excellent
Alkali, Acid and Salt Resistance	High
Ignition Point	1094 °F
Absorption	Maximum 10% by weight
Specific Gravity	0.91
Dosage (Normal)	Minimum 3 lb/cuyd if macro-synthetic, or as recommended by the manufacturer to control plastic shrinkage cracking and concrete long-term performance,
Form(Material)	Monofilament,non-fibrillating, made of virgin Polyolefin or Polypropylene
L/D Aspect Ratio	85 -100

NOTE:

### **51-8.03 CONSTRUCTION**

The Engineer provides final grade and cross slope before the start of overlay work.

After removing approximately 1/4 inch from the bridge deck surface and cleaning deck surfaces, and before drilling and bonding dowels for the overlay, the Engineer tests existing deck surface smoothness under section 51-1.01D(4)(b) to determine and identify sag areas and high areas and may require you to modify the existing deck smoothness under section 42-3. Modifying the existing deck smoothness is change order work.

Construction of approach slabs must be complete before placing bridge deck fiber-reinforced PCC overlay.

Concrete deck surfaces to be covered with an overlay must comply with section 51-1.01D(4)(b) before starting overlay work.

Finishing equipment for fiber-reinforced PCC concrete overlay must:

1. Have grade control capabilities
2. Be used to consolidate the fiber-reinforced PCC

Sweep the deck. Blow the deck clean with compressed air.

Flush existing cold-milled and cleaned deck surfaces with water and allow the surface to dry to a surface-dry condition before placing the fiber-reinforced PCC overlay.

Any improperly batched fiber-reinforced PCC which develops dry balls of fibers or a significant number of wet fiber balls (which includes fibers and material) will be rejected, discarded, and removed from site.

Place and finish bridge deck fiber-reinforced PCC overlay.

Strike off open slab surfaces first with a laser or vibrating metal screed with slightly rounded edges. In areas where a screed is not used, care must be taken to not overwork fiber-reinforced PCC overlay surface. Use magnesium floats to establish a surface to close up any tears or open areas to the surface. Use of wood floats is not permitted. Troweling blades must be kept at a flat angle for as long as possible to insure a fiber free surface.

Provide sufficient human resources to properly execute the hot weather concreting procedures while continuously placing and finishing the fiber-reinforced PCC overlay.

Avoid overmixing and using a mixture with too much coarse aggregate in the fiber-reinforced PCC concrete.

Texture the fiber-reinforced PCC overlay surface longitudinally by grinding and grooving to comply with section 51-1.03F(5)(b)(i).

### **51-8.04 PAYMENT**

Structural concrete, fiber-reinforced PCC overlay is measured by the cubic yard.

Payment for longitudinal grinding and grooving of the bridge deck fiber-reinforced PCC overlay surfaces is included in the payment for structural concrete, fiber-reinforced PCC overlay.

Drill and bond dowels are measured by the linear foot of accepted drilled holes and furnishing dowels are paid for separately.

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## **55 STEEL STRUCTURES**

**Replace "Reserved" in section 55-2 with:**

### **55-2.01 GENERAL**

#### **55-2.01A Summary**

Section 55-2 includes specifications for fitting painted structural steel shells to columns and filling voids with grout.

For field welding of column casings (1) only visual inspection is required and (2) the 2nd sentence of paragraph 3.13.2 and the 1st sentence of paragraph 3.13.3 of AWS D1.5 do not apply.

#### **55-2.01B Definitions**

Not Used

#### **55-2.01C Submittals**

Submit a painting quality work plan under section 59-2.01C(3).

#### **55-2.01D Quality Control and Assurance**

Instead of submitting proof of the certification complying with SSPC-QP 1, you may submit documentation showing compliance with section 3 of SSPC-QP 1.

**Replace "Reserved" in section 59-2.01C(2) with:**

Submit proof of each required SSPC-QP certification as specified in section 2-1.35. Required certifications are as follows:

1. SSPC-QP 1
2. AISC-420-10/SSPC-QP 3 (Enclosed Shop)

### **55-2.02 MATERIALS**

Steel for casings must comply with ASTM A 36/A 36M or ASTM A 709/A 709M, Grade 36.

Grout must comply with section 50-1.03B(2)(d). For non-circular columns with a minimum gap of 1 inch and a maximum gap greater than 4 inches, extend grout as follows:

1. Use an aggregate consisting of at least 70 percent fine aggregate and approximately 30 percent pea gravel by weight. The size of pea gravel must be such that 100 percent passes the 1/2-inch sieve, at least 90 percent passes the 3/8-inch sieve, and not more than 5 percent passes the no. 8 sieve.
2. Cement content of the grout must be at least 845 pounds per cubic yard.
3. California Test 541 is not required.

Mortar must comply with section 51-1.02F.

Drain extension pipe must comply with the specifications for drainage piping in section 75-1.03.

### **55-2.03 CONSTRUCTION**

#### **55-2.03A General**

Remove and dispose of all material from the space to be occupied by column casing materials.

Use spacers to center casings around columns during placement. You may weld spacers to the inside of casings.

Paint the information that is on existing columns onto casings under section 51-1.03E(1).

#### **55-2.03B Painting**

Clean and paint column casings as specified for painting new structural steel in section 59-2.

Apply the undercoat before shipment to the job site.





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**Add to the list in the 4th paragraph of section 80-3.02E:**

- [illegible]

**Add to section 82-1.03:**

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## 63

**Add to section 83-2.03D(1):**

Bridge no.	Description of work
Camillia City Viaduct (Widen/Br Rehab) (Br No 24-0248R/L))	<p>1. Work plan for implementation of (a) bridge removal (portion) work, (b) bridge deck widening and deck rehabilitation work and (c) barrier replacement work.</p> <p>2. Barrier construction is to be performed within the 30-day full-width bridge closure.</p> <p>3. Barrier must achieve the noted compressive strength before placement of the new lighting standards which is also within the 30-day full-width bridge closure.</p> <p>5. Furnishing and installing Type 1 conduit used for the electrical conduit inside of the concrete barrier conforming to the requirements in section 86-2.05.</p> <p>6. Stenciling and painting bridge numbers and bridge names, bent and abutment numbers on the concrete barrier wall in conformance with section 51-1.03E.</p>

Do not fasten lighting standards to concrete elements of bridges or railing before the concrete attains a compressive strength of 3,600 psi.

Thermoplastic must comply with section 84-2.

#### **84-6.01B Submittals**

Submit a certificate of compliance for glass beads.

#### **84-6.01C Quality Control and Assurance**

Within 14 days of applying a thermoplastic traffic stripe or pavement marking with enhanced wet night visibility, the retroreflectivity must be a minimum of 700 millicandelas per square meter per lux for white stripes and markings and 500 millicandelas per square meter per lux for yellow stripes and markings. Test the retroreflectivity under ASTM E 1710. Have a reflectometer as described in ASTM E 1710 at the job site for making these measurements.

#### **84-6.02 MATERIALS**

Thermoplastic traffic stripes and pavement markings with enhanced wet night visibility must consist of a single uniform layer of thermoplastic and 2 layers of glass beads as follows:

1. The 1st layer of glass beads must be on the Authorized Material List under high-performance retroreflective glass beads for use in thermoplastic traffic stripes and pavement markings. The color of the glass beads must match the color of the stripe or marking to which they are being applied.
2. The 2nd layer of glass beads must comply with AASHTO M 247, Type 2.

Both types of glass beads must be surface treated for use with thermoplastic under the bead manufacturer's instructions.

#### **84-6.03 CONSTRUCTION**

Use a ribbon extrusion or screed type applicator to apply a thermoplastic traffic stripe.

Operate the striping machine at a speed of 8 mph or slower during the application of thermoplastic traffic stripe and glass beads.

Apply a thermoplastic traffic stripe at a rate of at least 0.38 pounds per foot of 4-inch wide solid stripe. The applied thermoplastic traffic stripe must be at least 0.090 inch thick.

Apply a thermoplastic pavement marking at a rate of at least 1.06 pounds per square foot. The applied thermoplastic pavement marking must be at least 0.100 inch thick.

Apply a thermoplastic traffic stripe and both types of glass beads in a single pass. Apply the thermoplastic 1st, followed immediately by consecutive applications of high-performance glass beads and then AASHTO M 247, Type 2 glass beads. Use 2 separate applicator guns for the glass beads, 1 applicator gun for each type of glass bead.

You may apply glass beads by hand methods on pavement markings.

Distribute all glass beads uniformly on traffic stripes and pavement markings. Apply high-performance glass beads at a rate of at least 6 pounds per 100 square feet of stripe or marking. Apply AASHTO M 247, Type 2 glass beads at a rate of at least 8 pounds per 100 square feet of stripe or marking. The combined weight of the 2 types of glass beads must be greater than 14 pounds per 100 square feet of stripe or marking.

#### **84-6.04 PAYMENT**

Not Used

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

## 86 ELECTRICAL SYSTEMS

### **Add to the end of the 1st paragraph of section 86-1.01:**

This work is shown on sheets labeled *E*. The work involved in each section 86 bid item is shown on a sheet with a sheet title matching the bid item description except for the following bid items:

1. Maintaining existing traffic management system elements during construction  
Lighting equipment is included in the following structures:
1. Camellia City Viaduct, Br No. 24-0248R
2. Camellia City Viaduct, Br No. 24-0248L

### **Add to section 86-1.03:**

Submit a schedule of values within 15 days after Contract approval.

### **Add to the 4th paragraph of section 86-1.03:**

13. Materials shown in the quantity tables on sheets labeled *E*

### **Replace "Reserved" in section 86-1.06B with:**

Traffic Management System (TMS) elements include, but are not limited to ramp metering (RM) system, communication system, traffic monitoring stations, video image vehicle detection system (VIVDS), microwave vehicle detection system (MVDS), loop detection system, changeable message sign (CMS) system, extinguishable message sign (EMS) system, highway advisory radio (HAR) system, closed circuit television (CCTV) camera system, roadway weather information system (RWIS), visibility sensor, and fiber optic system.

Existing TMS elements, including detection systems, shown and located within the project limits must remain in place and be protected from damage. If the construction activities require existing TMS elements to be nonoperational or off line, and if temporary or portable TMS elements are not shown, the Contractor must provide for temporary or portable TMS elements. The Contractor must receive authorization on the type of temporary or portable TMS elements and installation method.

Before work is performed, the Engineer, the Contractor, and the Department's Traffic Operations Electrical representatives must jointly conduct a pre-construction operational status check of all existing TMS elements and each element's communication status with the Traffic Management Center (TMC), including existing TMS elements not shown and elements that may not be impacted by the Contractor's activities. The Department's Traffic Operations Electrical representatives will certify the TMS elements' location and status, and provide a copy of the certified list of the existing TMS elements within the project limits to the Contractor. The status list will include the operational, defined as having full functionality, and the nonoperational components.

The Contractor must obtain authorization at least 72 hours before interrupting existing TMS elements' communication with the TMC that will result in the elements being nonoperational or off line. The Contractor must notify the Engineer at least 72 hours before starting excavation activities.

Traffic monitoring stations and their associated communication systems, which were verified to be operational during the pre-construction operational status check, must remain operational on freeway/highway mainline at all times, except:

1. For a duration of up to 15 days on any continuous segment of the freeway/highway longer than 3 miles
2. For a duration of up to 60 days on any continuous segment of the freeway/highway shorter than 3 miles

If the construction activities require existing detection systems to be nonoperational or off line for a longer time period or the spacing between traffic monitoring stations is more than the specified criteria above, and temporary or portable detection operations are not shown, the Contractor must provide provisions for temporary or portable detection operations. The Contractor must receive authorization on the type of detection and installation before installing the temporary or portable detection.

If existing TMS elements shown or identified during the pre-construction operational status check, except traffic monitoring stations, are damaged or fail due to the Contractor's activity, where the elements are not fully functional, the Engineer must be notified immediately. If the Contractor is notified by the Engineer that existing TMS elements have been damaged, have failed or are not fully functional due to the Contractor's activity, the damaged or failed TMS elements, excluding structure-related elements, must be repaired or replaced, at the Contractor's expense, within 24 hours. For a structure-related elements, the Contractor must install temporary or portable TMS elements within 24 hours. For nonstructure-related TMS elements, the Engineer may authorize temporary or portable TMS elements for use during the construction activities.

The Contractor must demonstrate that repaired or replaced elements operate in a manner equal to or better than the replaced equipment. If the Contractor fails to perform required repairs or replacement work, the Department may perform the repair or replacement work and the cost will be deducted from monies due to the Contractor.

A TMS element must be considered nonoperational or off line for the duration of time that active communications with the TMC is disrupted, resulting in messages and commands not transmitted from or to the TMS element.

The Contractor must provide provisions for replacing existing TMS elements within the project limits, including detection systems, that were not identified on the plans or during the pre-construction operational status check that became damaged due to the Contractor's activities.

If the pre-construction operational status check identified existing TMS elements, then the Contractor, the Engineer, and the Department's Traffic Operations Electrical representatives must jointly conduct a post construction operational status check of all existing TMS elements and each element's communication status with the TMC. The Department's Traffic Operations Electrical representatives will certify the TMS elements' status and provide a copy of the certified list of the existing TMS elements within the project limits to the Contractor. The status list will include the operational, defined as having full functionality, and the nonoperational components. TMS elements that cease to be functional between pre and post construction status checks must be repaired at the Contractor's expense.

The Engineer will authorize the schedule for final replacement, the replacement methods and the replacement elements, including element types and installation methods before repair or replacement work is performed. The final TMS elements must be new and of equal or better quality than the existing TMS elements.

If no electrical work exists on the project and no TMS elements are identified within the project limits, the pre-construction operational status check is change order work.

Furnishing and installing temporary or portable TMS elements that are not shown, but are required when an existing TMS element becomes nonoperational or off line due to construction activities, is change order work.

Furnishing and installing temporary or portable TMS elements and replacing TMS elements that are not shown nor identified during the pre-construction operational status check and were damaged by construction activities is change order work.

If the Contractor is required to submit provisions for the replacement of TMS elements that were not identified, submitting the provisions is change order work.

**Add to section 86-2.05A:**

Conduit installed underground must be Type 1.

**Add to section 86-2.05B:**

The conduit in a foundation and between a foundation and the nearest pull box must be Type 1.

**Add to section 86-2.05C:**

If a standard coupling cannot be used for joining Type 1 conduit, use a UL-listed threaded union coupling under section 86-2.05C, a concrete-tight split coupling, or a concrete-tight set screw coupling.

After conductors have been installed, the ends of the all conduits must be sealed with an authorized type of sealing compound.

The final 2 feet of conduit entering a pull box in a reinforced concrete structure may be Type 4.

**Replace "Reserved" in section 86-2.06B of the RSS for section 86-2.06 with:**

**86-2.06B(1) General**

**86-2.06B(1)(a) Summary**

This work includes installing non-traffic-rated pull boxes.

**86-2.06B(1)(b) Submittals**

Before shipping pull boxes to the jobsite, submit a list of materials, Contract number, pull box manufacturer, manufacturer's instructions for pull box installation, and your contact information to METS.

Submit reports for pull box from an NRTL-accredited lab.

**86-2.06B(1)(c) Quality Control and Assurance**

**86-2.06B(1)(c)(i) General**

Pull boxes may be tested by the Department. Deliver pull boxes and covers to METS and allow 30 days for testing. When testing is complete, you will be notified. You must pick up the boxes and covers from the test site and deliver it to the job site.

Any failure of the pull box or the cover that renders the unit noncompliant with these specifications will be a cause for rejection. If the unit is rejected, you must allow 30 days for retesting. Retesting period starts when the replacement pull box is delivered to the test site. You must pay for all retesting costs. Delays resulting from the submittal of noncompliant materials does not relieve you from executing the Contract within the allotted time.

If the pull box submitted for testing does not comply with the specifications, remove the unit from the test site within 5 business days after notification that it is rejected. If the unit is not removed within that period, it may be shipped to you at your expense.

You must pay for all shipping, handling, and transportation costs related to the testing and retesting.

**86-2.06B(1)(c)(ii) Functional Testing**

The pull box and cover must be tested under ANSI/SCTE 77, "Specifications for Underground Enclosure Integrity."

**86-2.06B(1)(c)(iii) Warranty**

Provide a 2-year manufacturer replacement warranty for pull box and cover from the date of installation of the pull box and cover. All warranty documentation must be submitted before installation.

Replacement parts must be provided within 5 business days after receipt of failed pull box, cover, or both at no cost to the Department and must be delivered to the Department's Maintenance Electrical Shop at 11325 Sanders Drive Rancho Cordova, California 95742.

**86-2.06B(2) Materials**

The pull box and cover must comply with ANSI/SCTE 77, "Specifications for Underground Enclosure Integrity," for Tier 22 load rating and must be gray or brown in color.

Each pull box cover must have an electronic marker cast inside.

Extension for the pull box must be of the same material as the pull box and attached to the pull box to maintain the minimum combined depths as shown.

Include recesses for a hanger if a transformer or other device must be placed in a pull box.

The bolts, nuts, and washers must be a captive bolt design.

The captive bolt design must be capable of withstanding a torque range of 55 to 60 ft-lb and a minimum pull out strength of 750 lb. Perform the test with the cover in place and the bolts torqued. The pull box and cover must not be damaged while performing the test to the minimum pull out strength.

Stainless steel hardware must have an 18 percent chromium content and an 8 percent nickel content.

Galvanize ferrous metal parts under section 75-1-.05.

Manufacturer's instructions must provide guidance on:

1. Quantity and size of entries that can be made without degrading the strength of the pull box below Tier 22 load rating
2. Where side entries cannot be made
3. Acceptable method to be used to create the entry

Tier 22 load rating must be labeled or stenciled by the manufacturer on the inside and outside of the pull box and on the underside of the cover.

### **86-2.06B(3) Construction**

Do not install pull box in curb ramps or driveways.

A pull box for a post or a pole standard must be located within 5 feet of the standard. Place a pull box adjacent to the back of the curb or edge of the shoulder. If this is impractical, place the pull box in a suitable, protected, and accessible location.

#### **Add to section 86-2.08A:**

Wrap conductors around the projecting end of conduit in pull boxes as shown. Secure conductors and cables to the projecting end of the conduit in pull boxes.

#### **Replace the 1st paragraph of section 86-2.09E with:**

Splices must be insulated by "Method B."

#### **Delete the 6th and 7th paragraphs of section 86-2.09E.**

#### **Add to section 86-2.11A:**

Continuous welding of exterior seams in service equipment enclosures is not required.

Circuit breakers must be the cable-in/cable-out type mounted on non-energized clips. All circuit breakers must be mounted vertically with the up position of the handle being the "ON" position.

Each service must be provided with up to 2 main circuit breakers that will disconnect ungrounded service entrance conductors. Where the "Main" circuit breaker consists of 2 circuit breakers as described, each of the circuit breakers must have a minimum interrupting capacity of 10,000 A, rms.

#### **Replace item 9 in the list in the 5th paragraph of section 86-2.11A with:**

The Contractor must arrange with the service utility to complete service connections for temporary service installations. The Contractor must pay all costs and fees for the energy, line extension, and service connections required by the service utility. Inform the Engineer 15 days before the service connections are required.

#### **Replace section 86-2.18 with:**

### **86-2.18 NUMBERING ELECTRICAL EQUIPMENT**

#### **Replace 1st paragraph of section 86-2.18 with:**

Place numbers on the equipment as ordered.

**Delete 2nd sentence of 3rd paragraph of section 86-2.18.**

**Add to section 86-5.01A(1):**

Loop wire must be Type 2.

Loop detector lead-in cable must be Type B.

Slots must be filled with elastomeric sealant, or hot-melt rubberized asphalt sealant.

You may use a Type E loop where a Type A is shown.

For Type E detector loops, sides of the slot must be vertical and the minimum radius of the slot entering and leaving the circular part of the loop must be 1-1/2 inches. Slot width must be a maximum of 5/8 inch. Loop wire for circular loops must be Type 2. Slots of circular loops must be filled with elastomeric sealant or hot-melt rubberized asphalt sealant.

**Add to section 86-5.01:**

**86-5.01E Modify Closed Circuit Television System**

**86-5.01E(1) GENERAL**

**86-5.01E(1)(a) Summary**

This work includes installing camera interconnect cable for existing closed circuit television (CCTV) system.

**86-5.01E(2) MATERIALS**

**86-5.01E(2)(a) General**

The existing camera interconnect cable deployed in the district is the Cohu CA290 series, Model #CA297G. Furnished new cable must be compatible with the existing CCTV system and these special provisions.

The camera interconnect cable must provide video, data, and power conductors in a single jacketed cable. The same manufacturer as the existing camera assembly must make the composite cable.

**86-5.01E(3) CONSTRUCTION**

The camera interconnect cable must have a strain relief located towards the top of the CCTV pole and hung on the pole j-hook. Wiring must run continuous from source to destination. No splices will be allowed. Contractor must verify composite cable length prior to ordering of materials.

**Replace section 86-6.01 with:**

**86-6.01 LED LUMINAIRES**

**86-6.01A General**

**86-6.01A(1) Summary**

Section 86-6.01 includes specifications for installing LED luminaires.

**86-6.01A(2) Definitions**

**CALiPER:** Commercially Available LED Product Evaluation and Reporting. A U.S. DOE program that individually tests and provides unbiased information on the performance of commercially available LED luminaires and lights.

**correlated color temperature:** Absolute temperature in kelvin of a blackbody whose chromaticity most nearly resembles that of the light source.

**house side lumens:** Lumens from a luminaire directed to light up areas between the fixture and the pole (e.g., sidewalks at intersection or areas off of the shoulders on freeways).

**International Electrotechnical Commission (IEC):** Organization that prepares and publishes international standards for all electrical, electronic and related technologies.



**junction temperature:** Temperature of the electronic junction of the LED device. The junction temperature is critical in determining photometric performance, estimating operational life, and preventing catastrophic failure of the LED.

**L70:** Extrapolated life in hours of the luminaire when the luminous output depreciates 30 percent from initial values.

**LM-79:** Test method from the Illumination Engineering Society of North America (IESNA) specifying test conditions, measurements, and report format for testing solid state lighting devices, including LED luminaires.

**LM-80:** Test method from the IESNA specifying test conditions, measurements, and report format for testing and estimating the long term performance of LEDs for general lighting purposes.

**National Voluntary Laboratory Accreditation Program (NVLAP):** U.S. DOE program that accredits independent testing laboratories to qualify.

**power factor:** Ratio of the real power component to the complex power component.

**street side lumens:** Lumens from a luminaire directed to light up areas between the fixture and the roadway (e.g., traveled ways, freeway lanes).

**surge protection device (SPD):** Subsystem or component that can protect the unit against short duration voltage and current surges.

**total harmonic distortion:** Ratio of the rms value of the sum of the squared individual harmonic amplitudes to the rms value of the fundamental frequency of a complex waveform.

### **86-6.01A(3) Submittals**

Submit a sample luminaire to METS for testing after the manufacturer's testing is completed. Include the manufacturer's testing data.

Product submittals must include:

1. LED luminaire checklist.
2. Product specification sheets, including:
  - 2.1. Maximum power in watts.
  - 2.2. Maximum designed junction temperature.
  - 2.3. Heat sink area in square inches.
  - 2.4. Designed junction to ambient thermal resistance calculation with thermal resistance components clearly defined.
  - 2.5. L70 in hours when extrapolated for the average nighttime operating temperature.
3. IES LM-79 and IES LM-80 compliant test reports from a CALiPER-qualified or NVLAP-approved testing laboratory for the specific model submitted.
4. Photometric file based on LM-79 test report.
5. Initial and depreciated isofootcandle diagrams showing the specified minimum illuminance for the particular application. The diagrams must be calibrated to feet and show a 40 by 40 foot grid. The diagrams must be calibrated to the mounting height specified for that particular application. The depreciated isofootcandle diagrams must be calculated at the minimum operational life.
6. Test report showing SPD performance as tested under ANSI/IEEE C62.41.2 and ANSI/IEEE C62.45.
7. Test report showing mechanical vibration test results as tested under California Test 611 or equal.
8. Data sheets from the LED manufacturer that include information on life expectancy based on junction temperature.
9. Data sheets from the power supply manufacturer that include life expectancy information.

Submit documentation of a production QA performed by the luminaire manufacturer that ensures the minimum performance levels of the modules comply with the section 86-6.01 specifications and includes a documented process for resolving problems. Submit documentation as an informational submittal.

Submit warranty documentation as an informational submittal before installing LED luminaires.

## **86-6.01A(4) Quality Control and Assurance**

### **86-6.01A(4)(a) General**

The Department may perform random sample testing on the shipments. The Department completes testing within 30 days after delivery to METS. Luminaires are tested under California Test 678. All parameters specified in section 86-6.01 specifications may be tested on the shipment sample. When testing is complete, the Department notifies you. Pick up the equipment from the test site and deliver to the job site.

One sample luminaire must be fitted with a thermistor or thermo-couple temperature sensor. A temperature sensor must be mounted on the LED solder pad as close to the LED as possible. A temperature sensor must be mounted on the power supply case. Light bar or modular systems must have 1 sensor for each module mounted as close to the center of the module as possible. Other configurations must have at least 5 sensors per luminaire. Contact METS for advice on sensor location. Thermocouples must be either Type K or C. Thermistors must be a negative temperature coefficient type with a nominal resistance of 20 kΩ. The appropriate thermocouple wire must be used. The leads must be a minimum of 6 feet. Documentation must accompany the test unit that details the type of sensor used.

The sample luminaires must be energized for a minimum of 24 hours, at 100 percent on-time duty cycle, at a temperature of +70 degrees F before performing any testing.

The luminaire lighting performance must be depreciated for the minimum operating life by using the LED manufacturer's data or the data from the LM-80 test report, whichever results in a higher lumen depreciation.

Failure of the luminaire that renders the unit noncompliant with section 86-6.01 specifications is cause for rejection. If a unit is rejected, allow 30 days for retesting. The retesting period starts when the replacement luminaire is delivered to the test site.

If a luminaire submitted for testing does not comply with section 86-6.01, remove the unit from METS within 5 business days after notification the unit is rejected. If the unit is not removed within that period, the Department may ship the unit to you and deduct the cost.

### **86-6.01A(4)(b) Warranty**

Furnish a 7-year replacement warranty from the manufacturer of the luminaires against any defects or failures. The effective date of the warranty is the date of installation. Furnish replacement luminaires within 10 days after receipt of the failed luminaire. The Department does not pay for the replacement. Deliver replacement luminaires to the following department maintenance electrical shop:

Sacramento maintenance electrical shop  
11325 Sanders Drive  
Rancho Cordova, CA 95742

## **86-6.01B Materials**

### **86-6.01B(1) General**

The luminaire must include an assembly that uses LEDs as the light source. The assembly must include a housing, an LED array, and an electronic driver. The luminaire must:

1. Be UL listed under UL 1598 for luminaires in wet locations or an equivalent standard from a recognized testing laboratory
2. Have a minimum operational life of 63,000 hours
3. Operate at an average operating time of 11.5 hours per night
4. Be designed to operate at an average nighttime operating temperature of 70 degrees F
5. Have an operating temperature range from -40 to +130 degrees F
6. Be defined by the following application:

Application	Replaces
Roadway 1	200 Watt HPS mounted at 34 ft
Roadway 2	310 Watt HPS mounted at 40 ft
Roadway 3	310 Watt HPS mounted at 40 ft with back side control
Roadway 4	400 Watt HPS mounted at 40 ft

The individual LEDs must be connected such that a catastrophic loss or a failure of 1 LED does not result in the loss of more than 20 percent of the luminous output of the luminaire.

#### **86-6.01B(2) Luminaire Identification**

Each luminaire must have the following identification permanently marked inside the unit and outside of its packaging box:

1. Manufacturer's name
2. Trademark
3. Model no.
4. Serial no.
5. Date of manufacture (month-year)
6. Lot number
7. Contract number
8. Rated voltage
9. Rated wattage
10. Rated power in VA

#### **86-6.01B(3) Electrical Requirements**

The luminaire must operate from a  $60 \pm 3$  Hz AC power source. The fluctuations of line voltage must have no visible effect on the luminous output. The operating voltage may range from 120 to 480 V(ac). The luminaire must operate over the entire voltage range or the voltage range must be selected from either of the following options:

1. Luminaire must operate over a voltage range of 95 to 277 V(ac). The operating voltages for this option are 120 V(ac) and 240 V(ac).
2. Luminaire must operate over a voltage range of 347 to 480 V(ac). The operating voltage for this option is 480 V(ac).

The power factor of the luminaire must be 0.90 or greater. The total harmonic distortion, current and voltage, induced into an AC power line by a luminaire must not exceed 20 percent. The maximum power consumption allowed for the luminaire must be as shown in the following table:

Application	Maximum consumption (Watts)
Roadway 1	165
Roadway 2	235
Roadway 3	235
Roadway 4	300

#### **86-6.01B(4) Surge Suppression and Electromagnetic Interference**

The luminaire on-board circuitry must include an SPD to withstand high repetition noise transients caused by utility line switching, nearby lightning strikes, and other interferences. The SPD must protect the luminaire from damage and failure due to transient voltages and currents as defined in Tables 1 and 4 of ANSI/IEEE C64.41.2 for location category C-High. The SPD must comply with UL 1449. The SPD performance must be tested under ANSI/IEEE C62.45 based on ANSI/IEEE C62.41.2 definitions for standard and optional waveforms for location category C-High.

The luminaires and associated on-board circuitry must comply with the Class A emission limits provided in 47 CFR 15, subpart B concerning the emission of electronic noise.

#### 86-6.01B(5) Compatibility

The luminaire must be operationally compatible with currently used lighting control systems and photoelectric controls.

#### 86-6.01B(6) Photometric Requirements

The luminaire must maintain a minimum illuminance level throughout the minimum operating life. The L70 of the luminaire must be the minimum operating life or greater. The measurements must be calibrated to standard photopic calibrations. The minimum maintained illuminance values measured at a point must be as shown in the following table:

Application	Mounting height (ft)	Minimum maintained illuminance (fc)	Light pattern figure (isofootcandle curve)
Roadway 1	34	0.15	<p>Pattern defined by an ellipse with the equation:</p> $\frac{x^2}{(82)^2} + \frac{(y - 20)^2}{(52)^2} = 1$ <p>where:  <math>x</math> = direction longitudinal to the roadway  <math>y</math> = direction transverse to the roadway and the luminaire is offset from the center of the pattern by 20 feet to the house side of the pattern.</p>
Roadway 2	40	0.2	<p>Pattern defined by an ellipse with the equation:</p> $\frac{x^2}{(82)^2} + \frac{(y - 20)^2}{(52)^2} = 1$ <p>where:  <math>x</math> = direction longitudinal to the roadway  <math>y</math> = direction transverse to the roadway and the luminaire is offset from the center of the pattern by 20 feet to the house side of the pattern.</p>
Roadway 3	40	0.2	<p>Pattern defined by an ellipse with the equation:</p> $\frac{x^2}{(92)^2} + \frac{(y - 23)^2}{(55)^2} = 1$ <p>for <math>y \geq 0</math> (street side)</p> <p>where:  <math>x</math> = direction longitudinal to the roadway  <math>y</math> = direction transverse to the roadway and the luminaire is offset from the center of the pattern by 23 feet to the house side of the pattern.</p>

Roadway 4	40	0.2	<p>Pattern defined by an ellipse with the equation:</p> $\frac{x^2}{(92)^2} + \frac{(y - 23)^2}{(55)^2} = 1$ <p>where:  <math>x</math> = direction longitudinal to the roadway  <math>y</math> = direction transverse to the roadway and the luminaire is offset from the center of the pattern by 23 feet to the house side of the pattern.</p>
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The luminaire must have a correlated color temperature range from 3,500 to 6,500 K. The color rendering index must be 65 or greater.

The luminaire must not allow more than:

1. 10 percent of the rated lumens to project above 80 degrees from vertical
2. 2.5 percent of the rated lumens to project above 90 degrees from vertical

#### **86-6.01B(7) Thermal Management**

The passive thermal management of the heat generated by the LEDs must have enough capacity to ensure proper operation of the luminaire over the minimum operation life. The LED maximum junction temperature for the minimum operation life must not exceed 221 degrees F.

The junction-to-ambient thermal resistance must be 95 degrees F per watt or less. The use of fans or other mechanical devices is not allowed. The heat sink material must be aluminum or other material of equal or lower thermal resistance.

The luminaire must contain circuitry that automatically reduces the power to the LEDs to a level that ensures the maximum junction temperature is not exceeded when the ambient outside air temperature is 100 degrees F or greater.

#### **86-6.01B(8) Physical and Mechanical Requirements**

The luminaire must be a single, self-contained device, not requiring job site assembly for installation. The power supply for the luminaire is integral to the unit. The weight of the luminaire must not exceed 35 lb. The maximum effective projected area when viewed from either side or either end must be 1.4 sq ft. The housing color must match a color no. from 36231 to 36375, or color no. 36440 of FED-STD-595.

The housing must be fabricated from materials designed to withstand a 3,000-hour salt spray test under ASTM B 117. All aluminum used in housings and brackets must be of a marine grade alloy with less than 0.2 percent copper. All exposed aluminum must be anodized.

Each refractor or lens must be made from UV-inhibited high impact plastic such as acrylic or polycarbonate or heat- and impact-resistant glass and be resistant to scratching. Polymeric materials except lenses of enclosures containing either the power supply or electronic components of the luminaire must be made of UL94VO flame retardant materials. Paint or powder coating of the housing must comply with section 86-2.16. A chromate conversion undercoating must be used underneath a thermoplastic polyester powder coat.

Each housing must be provided with a slip fitter capable of mounting on a 2-inch pipe tenon. This slip fitter must fit on mast arms with outside diameters from 1-5/8 to 2-3/8 inches. The slip fitter must be capable of being adjusted a minimum of  $\pm 5$  degrees from the axis of the tenon in a minimum of five steps: +5, +2.5, 0, -2.5, -5. The clamping brackets of the slip fitter must not bottom out on the housing bosses when adjusted within the designed angular range. No part of the slip fitter mounting brackets on the luminaires must develop a permanent set in excess of 1/32 inch when the two or four 3/8-inch diameter cap screws used for mounting are tightened to 10 ft-lb. Two sets of cap screws may be furnished to allow the slip fitter to be mounted on the pipe tenon in the acceptable range without the cap screws bottoming out in the threaded holes. The cap screws and the clamping brackets must be made of corrosion resistant materials or treated to prevent galvanic reactions and be compatible with the luminaire housing and the mast arm.

The assembly and manufacturing process for the LED luminaire must be designed to ensure internal components are adequately supported to withstand mechanical shock and vibration from high winds and other sources. When tested under California Test 611, the luminaire to be mounted horizontally on the mast arm must be capable of withstanding the following cyclic loading for a minimum of 2 million cycles without failure of any luminaire part:

<b>Cyclic Loading</b>		
Plane	Power supply	Minimum peak acceleration level
Vertical	Installed	3.0 g peak-to-peak sinusoidal loading (same as 1.5 g peak)
Horizontal <sup>a</sup>	Installed	1.5 g peak-to-peak sinusoidal loading (same as 0.75 g peak)

<sup>a</sup>Perpendicular to the direction of the mast arm

The housing must be designed to prevent the buildup of water on top of the housing. Exposed heat sink fins must be oriented to allow water to freely run off of the luminaire and carry dust and other accumulated debris away from the unit. The optical assembly of the luminaire must be protected against dust and moisture intrusion to at least an ANSI/IEC rating of IP66. The power supply enclosure must be protected to at least an ANSI/IEC rating of IP43.

Each mounted luminaire must be furnished with an ANSI C136.10-compliant, locking type photocontrol receptacle and a rain tight shorting cap. The receptacle must comply with section 86-6.11A.

When the components are mounted on a down-opening door, the door must be hinged and secured to the luminaire housing separately from the refractor or flat lens frame. The door must be secured to the housing such that accidental opening is prevented. A safety cable must mechanically connect the door to the housing.

Field wires connected to the luminaire must terminate on a barrier type terminal block secured to the housing. The terminal screws must be captive and equipped with wire grips for conductors up to no. 6. Each terminal position must be clearly identified.

The power supply must be rated for outdoor operation and have at least an ANSI/IEC rating of IP65.

The power supply must be rated for a minimum operational life equal to the minimum operational life of the luminaire or greater.

The power supply case temperature must have a self rise of 77 degrees F or less above ambient temperature in free air with no additional heat sinks.

The power supply must have 2 leads to accept standard 0-10 V(dc). The dimming control must be compatible with IEC 60929. If the control leads are open or the analog control signal is lost, the circuit must default to 100-percent power.

Conductors and terminals must be identified.

#### **Replace section 86-6.05 with:**

### **86-6.05 SOFFIT LIGHT EMITTING DIODE LUMINAIRES**

#### **86-6.05A General**

##### **86-6.05A(1) Summary**

Section 86-6.05 includes specifications for installing soffit light emitting diode (LED) luminaire.

##### **86-6.05A(2) Definitions**

**CALiPER:** Commercially Available LED Product Evaluation and Reporting. A U.S. DOE program that individually tests and provides unbiased information on the performance of commercially available LED luminaires and lights.

**correlated color temperature:** Absolute temperature in kelvin of a blackbody whose chromaticity most nearly resembles that of the light source.

**International Electrotechnical Commission (IEC):** Organization that prepares and publishes international standards for all electrical, electronic and related technologies.

**junction temperature:** Temperature of the electronic junction of the LED device. The junction temperature is critical in determining photometric performance, estimating operational life, and preventing catastrophic failure of the LED.

**L70:** Extrapolated life in hours of the luminaire when the luminous output depreciates 30 percent from initial values.

**LM-79:** Test method from the Illumination Engineering Society of North America (IESNA) specifying test conditions, measurements, and report format for testing solid state lighting devices, including LED luminaires.

**LM-80:** Test method from the IESNA specifying test conditions, measurements, and report format for testing and estimating the long term performance of LEDs for general lighting purposes.

**National Voluntary Laboratory Accreditation Program (NVLAP):** U.S. DOE program that accredits independent testing laboratories to qualify.

**power factor:** Ratio of the real power component to the complex power component.

**surge protection device (SPD):** Subsystem or component that can protect the unit against short duration voltage and current surges.

**total harmonic distortion:** Ratio of the rms value of the sum of the squared individual harmonic amplitudes to the rms value of the fundamental frequency of a complex waveform.

#### **86-6.05A(3) Submittals**

Submit a sample soffit LED luminaire to METS for testing after the manufacturer's testing is completed. Include the manufacturer's testing data.

Product submittals must include:

1. Soffit LED luminaire checklist.
2. Product specification sheets, including:
  - 2.1. Maximum power in watts.
  - 2.2. Maximum designed junction temperature.
  - 2.3. Heat sink area in square inches.
  - 2.4. Designed junction to ambient thermal resistance calculation with thermal resistance components clearly defined.
  - 2.5. L70 in hours when extrapolated for the average nighttime operating temperature.
3. IES LM-79 and IES LM-80 compliant test reports from a CALiPER-qualified or NVLAP-approved testing laboratory for the specific model submitted.
4. Photometric file based on LM-79 test report.
5. Initial and depreciated isofootcandle diagrams showing the specified minimum illuminance for the particular application. The diagrams must be calibrated to feet and show a 40 by 40 foot grid. The diagrams must be calibrated to the mounting height specified for that particular application. The depreciated isofootcandle diagrams must be calculated at the minimum operational life.
6. Test report showing SPD performance as tested under ANSI/IEEE C62.41.2 and ANSI/IEEE C62.45.
7. Test report showing mechanical vibration test results as tested under California Test 611 or equal.
8. Data sheets from the LED manufacturer that include information on life expectancy based on junction temperature.
9. Data sheets from the power supply manufacturer that include life expectancy information.

Submit documentation of a production QA performed by the soffit LED luminaire manufacturer that ensures the minimum performance levels of the modules comply with the section 86-6.05 specifications and includes a documented process for resolving problems. Submit documentation as an informational submittal.

Submit warranty documentation as an informational submittal before installing soffit LED luminaire.

## **86-6.05A(4) Quality Control and Assurance**

### **86-6.05A(4)(a) General**

The Department may perform random sample testing on the shipments. The Department completes testing within 30 days after delivery to METS. The soffit LED luminaire is tested under California Test 678. All parameters specified in section 86-6.05 specification may be tested on the shipment sample. When testing is complete, the Department notifies you. Pick up the equipment from the test site and deliver to the job site.

One sample soffit LED luminaire must be fitted with a thermistor or thermo-couple temperature sensor. A temperature sensor must be mounted on the LED solder pad as close to the LED as possible. A temperature sensor must be mounted on the power supply case. Light bar or modular systems must have 1 sensor for each module mounted as close to the center of the module as possible. Other configurations must have at least 5 sensors per luminaire. Contact METS for advice on sensor location. Thermocouples must be either Type K or C. Thermistors must be a negative temperature coefficient type with a nominal resistance of 20 k $\Omega$ . The appropriate thermocouple wire must be used. The leads must be a minimum of 6 feet. Documentation must accompany the test unit that details the type of sensor used.

The sample soffit LED luminaire must be energized for a minimum of 24 hours, at 100 percent on-time duty cycle, at a temperature of +70 degrees F before performing any testing.

The soffit LED luminaire lighting performance must be depreciated for the minimum operating life by using the LED manufacturer's data or the data from the LM-80 test report, whichever results in a higher lumen depreciation.

Failure of the soffit LED luminaire that renders the unit noncompliant with section 86-6.05 specifications is cause for rejection. If a unit is rejected, allow 30 days for retesting. The retesting period starts when the replacement soffit LED luminaire is delivered to the test site.

If a soffit LED luminaire submitted for testing does not comply with section 86-6.05, remove the unit from METS within 5 business days after notification the unit is rejected. If the unit is not removed within that period, the Department may ship the unit to you and deduct the cost.

### **86-6.05A(4)(b) Warranty**

Furnish a 7-year replacement warranty from the manufacturer of the soffit LED luminaire against any defects or failures. The effective date of the warranty is the date of installation. Furnish replacement soffit LED luminaire within 10 days after receipt of the failed luminaire. The Department does not pay for the replacement. Deliver replacement soffit LED luminaire to the following department maintenance electrical shop, or as directed.

Caltrans Maintenance Electrical Shop, 11325 Sanders Drive, Rancho Cordova, California  
95742.Caltrans

## **86-6.05B Materials**

### **86-6.05B(1) General**

The soffit LED luminaire must include an assembly that uses LEDs as the light source. The assembly must include a housing, a heat sink, an LED array, and an electronic driver. The luminaire must:

1. Be UL listed under UL 1598 for luminaire in wet locations or an equivalent standard from a recognized testing laboratory
2. Have a minimum operational life of 63,000 hours
3. Operate at an average operating time of 11.5 hours per night
4. Be designed to operate at an average nighttime operating temperature of 70 degrees F
5. Have an operating temperature range from -40 to +130 degrees F

The individual LEDs must be connected such that a catastrophic loss or a failure of 1 LED does not result in the loss of more than 20 percent of the luminous output of the luminaire.

### **86-6.05B(2) Soffit LED Luminaire Identification**

Each soffit LED luminaire must have the following identification permanently marked inside the unit and outside of its packaging box:



1. Manufacturer's name
2. Trademark
3. Model no.
4. Serial no.
5. Date of manufacture (month-year)
6. Lot number
7. Contract number
8. Rated voltage
9. Rated wattage
10. Rated power in VA

#### **86-6.05B(3) Electrical Requirements**

The soffit LED luminaire must operate from a  $60 \pm 3$  Hz power source. The fluctuations of line voltage must have no visible effect on the luminous output. The operating voltage may range from 120 to 480 V(ac). The soffit LED luminaire must operate over the entire voltage range or the voltage range must be selected from one of the following options:

1. Soffit LED luminaire must operate over a voltage range of 95 to 277 V(ac). The operating voltages for this option are 120 V(ac) and 240 V(ac).
2. Soffit LED luminaire must operate over a voltage range of 347 to 480 V(ac). The operating voltage for this option is 480 V(ac).

The power factor of the soffit LED luminaire must be 0.90 or greater. The total harmonic distortion, current and voltage, induced into an AC power line by a luminaire must not exceed 20 percent. The maximum power consumption allowed for the soffit LED luminaire must be 70 W.

#### **86-6.05B(4) Surge Suppression and Electromagnetic Interference**

The soffit LED luminaire on-board circuitry must include an SPD to withstand high repetition noise transients caused by utility line switching, nearby lightning strikes, and other interferences. The SPD must protect the luminaire from damage and failure due to transient voltages and currents as defined in Tables 1 and 4 of ANSI/IEEE C64.41.2 for location category C-High. The SPD must comply with UL 1449. The SPD performance must be tested under ANSI/IEEE C62.45 based on ANSI/IEEE C62.41.2 definitions for standard and optional waveforms for location category C-High.

The soffit LED luminaire and associated on-board circuitry must comply with the Class A emission limits provided in 47 CFR 15, subpart B concerning the emission of electronic noise.

#### **86-6.05B(5) Compatibility**

The soffit LED luminaire must be operationally compatible with currently used lighting control systems and photoelectric controls.

#### **86-6.05B(6) Photometric Requirements**

The soffit LED luminaire must maintain a minimum illuminance level throughout the minimum operating life. The L70 of the soffit LED luminaire must be the minimum operating life or greater. The measurements must be calibrated to standard photopic calibrations. The minimum maintained illuminance value must be a type V light distribution and as shown.

The soffit LED luminaire must have a correlated color temperature range from 3,500 to 6,500 K. The color rendering index must be 65 or greater.

The soffit LED luminaire must not allow more than:

1. 10 percent of the rated lumens to project above 80 degrees from vertical
2. 2.5 percent of the rated lumens to project above 90 degrees from vertical

#### **86-6.05B(7) Thermal Management**

The passive thermal management of the heat generated by the LEDs must have enough capacity to ensure proper operation of the soffit LED luminaire over the minimum operation life. The LED maximum junction temperature for the minimum operation life must not exceed 221 degrees F.

The junction-to-ambient thermal resistance must be 95 degrees F per watt or less. The use of fans or other mechanical devices is not allowed. The heat sink material must be aluminum or other material of equal or lower thermal resistance.

The soffit LED luminaire must contain circuitry that automatically reduces the power to the LEDs to a level that ensures the maximum junction temperature is not exceeded when the ambient outside air temperature is 100 degrees F or greater.

#### **86-6.05B(8) Physical and Mechanical Requirements**

The soffit LED luminaire must be a single, self-contained device, not requiring job site assembly for installation. The power supply for the soffit LED luminaire is integral to the unit. The weight of the soffit LED luminaire must not exceed 35 lb. The maximum effective projected area when viewed from either side or either end must be 1.4 sq ft. The housing color must match a color no. from 26152 to 26440 or from 36231 to 36375, or color no. 36440 of FED-STD-595.

The housing must be fabricated from materials designed to withstand a 3,000-hour salt spray test under ASTM B 117. All aluminum used in housings and brackets must be of a marine grade alloy with less than 0.2 percent copper. All exposed aluminum must be anodized.

Each refractor or lens must be made from UV-inhibited high impact plastic such as acrylic or polycarbonate or heat- and impact-resistant glass and be resistant to scratching. Polymeric materials except lenses of enclosures containing either the power supply or electronic components of the soffit LED luminaire must be made of UL94VO flame retardant materials. Paint or powder coating of the housing must comply with section 86-2.16. A chromate conversion undercoating must be used underneath a thermoplastic polyester powder coat.

The assembly and manufacturing process for the soffit LED luminaire must be designed to ensure internal components are adequately supported to withstand mechanical shock and vibration from high winds and other sources.

The housing must be designed to prevent the buildup of water on top of the housing. Exposed heat sink fins must be oriented to allow water to freely run-off of the soffit LED luminaire and carry dust and other accumulated debris away from the unit. The optical assembly of the soffit LED luminaire must be protected against dust and moisture intrusion to at least an ANSI/IEC rating of IP66. The power supply enclosure must be protected to at least an ANSI/IEC rating of IP43.

Each mounted luminaire must be furnished with an ANSI C136.10-compliant, locking type photocontrol receptacle and a rain tight shorting cap. The receptacle must comply with section 86-6.11A.

When the components are mounted on a down-opening door, the door must be hinged and secured to the soffit LED luminaire housing separately from the refractor or flat lens frame. The door must be secured to the housing such that accidental opening is prevented. A safety cable must mechanically connect the door to the housing.

Field wires connected to the soffit LED luminaire must terminate on a barrier-type terminal block secured to the housing. The terminal screws must be captive and equipped with wire grips for conductors up to no. 6 AWG. Each terminal position must be clearly identified.

The power supply must be rated for outdoor operation and have at least an ANSI/IEC rating of IP65.

The power supply must be rated for a minimum operational life equal to the minimum operational life of the soffit LED luminaire or greater.

The power supply case temperature must have a self-rise of 77 degrees F or less above ambient temperature in free air with no additional heat sinks.

The power supply must have 2 leads to accept standard 0-10 V(dc). Conductors and terminals must be identified.

#### **86-6.05C Construction**

As shown.

**86-6.05D Payment**

Not Used.

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## DIVISION X MATERIALS

### 90 CONCRETE

**Replace the 1st paragraph in section 90-1.02A with:**

Concrete for pavement, approach slabs, and bridge decks must comply with the shrinkage:

Type of work	Maximum length change of laboratory cast specimens at 28 days drying (average of 3) (percent)
Paving and approach slab concrete	0.050
Bridge deck widening and overhang concrete	0.030
Bridge deck fiber-reinforced portland cement concrete overlay	0.030

**Add to section 90-2.02B:**

You may use rice hull ash as an SCM. Rice hull ash must comply with AASHTO M 321 and the chemical and physical requirements shown in the following tables:

Chemical property	Requirement (percent)
Silicon dioxide (SiO <sub>2</sub> ) <sup>a</sup>	90 min
Loss on ignition	5.0 max
Total alkalis as Na <sub>2</sub> O equivalent	3.0 max

Physical property	Requirement
Particle size distribution	
Less than 45 microns	95 percent
Less than 10 microns	50 percent
Strength activity index with portland cement <sup>b</sup>	
7 days	95 percent (min percent of control)
28 days	110 percent (min percent of control)
Expansion at 16 days when testing project materials under ASTM C 1567 <sup>c</sup>	0.10 percent max
Surface area when testing by nitrogen adsorption under ASTM D 5604	40.0 m <sup>2</sup> /g min

<sup>a</sup>SiO<sub>2</sub> in crystalline form must not exceed 1.0 percent.

<sup>b</sup>When tested under AASHTO M 307 for strength activity testing of silica fume.

<sup>c</sup>In the test mix, Type II or V portland cement must be replaced with at least 12 percent rice hull ash by weight.

For the purpose of calculating the equations for the cementitious material specifications, consider rice hull ash to be represented by the variable  $UF$ .

**REVISED STANDARD SPECIFICATIONS  
APPLICABLE TO THE 2010 EDITION  
OF THE STANDARD SPECIFICATIONS**



# REVISED STANDARD SPECIFICATIONS DATED 04-19-13

Revised standard specifications are under headings that correspond with the main-section headings of the *Standard Specifications*. A main-section heading is a heading shown in the table of contents of the *Standard Specifications*. A date under a main-section heading is the date of the latest revision to the section.

Each revision to the *Standard Specifications* begins with a revision clause that describes a revision to the *Standard Specifications* or introduces a revision to the *Standard Specifications*. For a revision clause that describes a revision, the date on the right above the clause is the publication date of the revision. For a revision clause that introduces a revision, the date on the right above a revised term, phrase, clause, paragraph, or section is the publication date of the revised term, phrase, clause, paragraph, or section. For a multiple-paragraph or multiple-section revision, the date on the right above a paragraph or section is the publication date of the paragraphs or sections that follow.

Any paragraph added or deleted by a revision clause does not change the paragraph numbering of the *Standard Specifications* for any other reference to a paragraph of the *Standard Specifications*.

## DIVISION I GENERAL PROVISIONS

### 1 GENERAL

04-19-13

**Replace "current" in the 2nd paragraph of section 1-1.05 with:**

04-20-12

most recent

**Add to the 4th paragraph of section 1-1.05:**

04-20-12

Any reference directly to a revised standard specification section is for convenience only. Lack of a direct reference to a revised standard specification section does not indicate a revised standard specification for the section does not exist.

**Add to the 1st table in section 1-1.06:**

04-19-13

LCS	Department's lane closure system
POC	pedestrian overcrossing
QSD	qualified SWPPP developer
QSP	qualified SWPPP practitioner
TRO	time-related overhead
WPC	water pollution control

**Delete the abbreviation and its meaning for *UDBE* in the 1st table of section 1-1.06.**

06-20-12

**Delete "Contract completion date" and its definition in section 1-1.07B.**

10-19-12

**Delete "critical delay" and its definition in section 1-1.07B.**

**Replace "day" and its definition in section 1-1.07B with:**

10-19-12

**day:** 24 consecutive hours running from midnight to midnight; calendar day.

1. **business day:** Day on the calendar except a Saturday and a holiday.
2. **working day:** Time measure unit for work progress. A working day is any 24-consecutive-hour period except:
  - 2.1. Saturday and holiday.
  - 2.2. Day during which you cannot perform work on the controlling activity for at least 50 percent of the scheduled work shift with at least 50 percent of the scheduled labor and equipment due to any of the following:
    - 2.2.1. Adverse weather-related conditions.
    - 2.2.2. Maintaining traffic under the Contract.
    - 2.2.3. Suspension of a controlling activity that you and the Engineer agree benefits both parties.
    - 2.2.4. Unanticipated event not caused by either party such as:
      - 2.2.4.1. Act of God.
      - 2.2.4.2. Act of a public enemy.
      - 2.2.4.3. Epidemic.
      - 2.2.4.4. Fire.
      - 2.2.4.5. Flood.
      - 2.2.4.6. Governor-declared state of emergency.
      - 2.2.4.7. Landslide.
      - 2.2.4.8. Quarantine restriction.
    - 2.2.5. Issue involving a third party, including:
      - 2.2.5.1. Industry or area-wide labor strike.
      - 2.2.5.2. Material shortage.
      - 2.2.5.3. Freight embargo.
      - 2.2.5.4. Jurisdictional requirement of a law enforcement agency.
      - 2.2.5.5. Workforce labor dispute of a utility or nonhighway facility owner resulting in a nonhighway facility rearrangement not described and not solely for the Contractor's convenience. Rearrangement of a nonhighway facility includes installation, relocation, alteration, or removal of the facility.
  - 2.3. Day during a concurrent delay.
3. **original working days:**
  - 3.1. Working days to complete the work shown on the *Notice to Bidders* for a non-cost plus time based bid.
  - 3.2. Working days bid to complete the work for a cost plus time based bid.

Where working days is specified without the modifier "original" in the context of the number of working days to complete the work, interpret the number as the number of original working days as adjusted by any time adjustment.

**Replace "Contract" in the definition of "early completion time" in section 1-1.07B with:**

10-19-12

work

**Replace "excusable delay" and its definition in section 1-1.07B with:**

10-19-12

**delay:** Event that extends the completion of an activity.

1. **excusable delay:** Delay caused by the Department and not reasonably foreseeable when the work began such as:



- 1.1. Change in the work
- 1.2. Department action that is not part of the Contract
- 1.3. Presence of an underground utility main not described in the Contract or in a location substantially different from that specified
- 1.4. Described facility rearrangement not rearranged as described, by the utility owner by the date specified, unless the rearrangement is solely for the Contractor's convenience
- 1.5. Department's failure to obtain timely access to the right-of-way
- 1.6. Department's failure to review a submittal or provide notification in the time specified
2. **critical delay:** Excusable delay that extends the scheduled completion date
3. **concurrent delay:** Occurrence of at least 2 of the following events in the same period of time, either partially or entirely:
  - 3.1. Critical delay
  - 3.2. Delay to a controlling activity caused by you
  - 3.3. Non-working day

**Replace "project" in the definition of "scheduled completion date" in section 1-1.07B with:**

10-19-12

work

**Add to section 1-1.07B:**

10-19-12

**Contract time:** Number of original working days as adjusted by any time adjustment.

06-20-12

**Disadvantaged Business Enterprise:** Disadvantaged Business Enterprise as defined in 49 CFR 26.5.

**Replace "PO BOX 911" in the District 3 mailing address in the table in section 1-1.08 with:**

04-20-12

703 B ST

**Add to the table in section 1-1.11:**

01-20-12

Office Engineer--All Projects Currently Advertised	<a href="http://www.dot.ca.gov/hq/esc/oe/weekly_ads/all_advertised.php">http://www.dot.ca.gov/hq/esc/oe/weekly_ads/all_advertised.php</a>	--	--
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## 2 BIDDING

10-19-12

**Replace the 3rd paragraph of section 2-1.06B with:**

01-20-12

If an *Information Handout* or cross sections are available:

1. You may view them at the Contract Plans and Special Provisions link at the Office Engineer--All Projects Currently Advertised Web site
2. For an informal-bid contract, you may obtain them at the Bidders' Exchange street address

01-20-12  
**Add a paragraph break between the 1st and 2nd sentences of the 5th paragraph of section 2-1.06B.**

04-20-12  
**Add between "and" and "are" in item 2 in the list in the 7th paragraph of section 2-1.06B:**  
they

06-20-12  
**Delete "Underutilized" in "Underutilized Disadvantaged Business Enterprises" in the heading of section 2-1.12B.**

06-20-12  
**Delete *U* in *UDBE* at each occurrence in section 2-1.12B.**

06-20-12  
**Replace the 2nd paragraph of section 2-1.12B(1) with:**  
To ensure equal participation of DBEs provided in 49 CFR 26.5, the Department shows a goal for DBEs.

06-20-12  
**Delete the 3rd paragraph of section 2-1.12B(1):**

06-20-12  
**Replace the 7th paragraph of section 2-1.12B(1) with:**  
All DBE participation will count toward the Department's federally-mandated statewide overall DBE goal.

06-20-12  
**Replace "offered" at the end of the 2nd sentence of item 7 in the list of 2nd paragraph of section 2-1.12B(3) with:**  
provided

01-20-12  
**Delete the 2nd paragraph of section 2-1.33A.**

01-20-12  
**Replace the 3rd paragraph of section 2-1.33A with:**  
Except for each subcontracted bid item number and corresponding percentage and proof of each required SSPC QP certification, do not fax submittals.

10-19-12  
**Add to section 2-1.33C:**  
On the *Subcontractor List*, you must either submit each subcontracted bid item number and corresponding percentage with your bid or fax these numbers and percentages to (916) 227-6282 within 24 hours after bid opening. Failure to do so results in a nonresponsive bid.

**Replace the paragraph in section 2-1.35 with:**

01-20-12

Submit proof of each required SSPC QP certification with your bid or fax it to (916) 227-6282 no later than 4:00 p.m. on the 2nd business day after bid opening. Failure to do so results in a nonresponsive bid.

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**3 CONTRACT AWARD AND EXECUTION**

10-19-12

**Add to the end of section 3-1.04:**

10-19-12

You may request to extend the award period by faxing a request to (916) 227-6282 before 4:00 p.m. on the last day of the award period. If you do not make this request, after the specified award period:

1. Your bid becomes invalid
2. You are not eligible for the award of the contract

**Replace the paragraph in section 3-1.11 with:**

10-19-12

Complete and deliver to the Office Engineer a *Payee Data Record* when requested by the Department.

**Replace section 3-1.13 with:**

07-27-12

**3-1.13 FORM FHWA-1273**

For a federal-aid contract, form FHWA-1273 is included with the Contract form in the documents sent to the successful bidder for execution. Comply with its provisions. Interpret the training and promotion section as specified in section 7-1.11A.

**Add to item 1 in the list in the 2nd paragraph of section 3-1.18:**

07-27-12

, including the attached form FHWA-1273

**Delete item 4 of the 2nd paragraph of section 3-1.18.**

10-19-12

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**5 CONTROL OF WORK**

10-19-12

**Add between "million" and ", professionally" in the 3rd paragraph of section 5-1.09A:**

10-19-12

and 100 or more working days

**Add to the list in the 4th paragraph of section 5-1.09A:**

10-19-12

9. Considering discussing with and involving all stakeholders in evaluating potential VECs

**Add to the end of item 1.1 in the list in the 7th paragraph of section 5-1.09A:**

10-19-12

, including VECs

**Replace the 1st paragraph of section 5-1.09C with:**

10-19-12

For a contract with a total bid over \$10 million and 100 or more working days, training in partnering skills development is required.

**Delete the 2nd paragraph of section 5-1.09C.**

10-19-12

**Replace "at least 2 representatives" in the 5th paragraph of section 5-1.09C with:**

10-19-12

field supervisory personnel

**Replace the 1st and 2nd sentences in the 7th paragraph of section 5-1.13B(1) with:**

06-20-12

If a DBE is decertified before completing its work, the DBE must notify you in writing of the decertification date. If a business becomes a certified DBE before completing its work, the business must notify you in writing of the certification date.

**Replace "90" in the last sentence of the 7th paragraph of section 5-1.13B(1) with:**

06-20-12

30

**Replace "Underutilized" in "Underutilized Disadvantaged Business Enterprises" in the heading of section 5-1.13B(2) with:**

06-20-12

Performance of

**Delete *U* in *UDBE* at each occurrence in section 5-1.13B(2).**

06-20-12

**Replace the 3rd paragraph of section 5-1.13B(2) with:**

06-20-12

Do not terminate or substitute a listed DBE for convenience and perform the work with your own forces or obtain materials from other sources without authorization from the Department.

**Replace item 6 in the list in the 4th paragraph of section 5-1.13B(2) with:**

06-20-12

6. Listed DBE is ineligible to work on the project because of suspension or debarment.

**Add to the list in the 4th paragraph of section 5-1.13B(2):**

06-20-12

8. Listed DBE voluntarily withdraws with written notice from the Contract.
9. Listed DBE is ineligible to receive credit for the type of work required.
10. Listed DBE owner dies or becomes disabled resulting in the inability to perform the work on the Contract.
11. Department determines other documented good cause.

**Add between the 4th and 5th paragraphs of section 5-1.13B(2):**

07-20-12

Notify the original DBE of your intent to use other forces or material sources and provide the reasons. Provide the DBE with 5 days to respond to your notice and advise you and the Department of the reasons why the use of other forces or sources of materials should not occur. Your request to use other forces or material sources must include:

1. 1 or more of the reasons listed in the preceding paragraph
2. Notices from you to the DBE regarding the request
3. Notices from the DBE to you regarding the request

**Add between "terminated" and ", you" in the 5th paragraph of section 5-1.13B(2):**

07-20-12

or substituted

**Replace "Contract" in item 1 in the list in the 5th paragraph of section 5-1.13C with:**

10-19-12

work

**Replace "Reserved" in section 5-1.20C with:**

10-19-12

If the Contract includes an agreement with a railroad company, the Department makes the provisions of the agreement available in the *Information Handout* in the document titled "Railroad Relations and Insurance Requirements." Comply with the requirements in the document.

**Add between the 2nd and 3rd paragraphs of section 5-1.23A:**

10-19-12

Submit action and informational submittals to the Engineer.

**Add to section 5-1.36C:**

07-20-12

If the Contract does not include an agreement with a railroad company, do not allow personnel or equipment on railroad property.

Prevent material, equipment, and debris from falling onto railroad property.

**Add between the 1st and 2nd paragraphs of section 5-1.37A:**

10-19-12

Do not remove any padlock used to secure a portion of the work until the Engineer is present to replace it. Notify the Engineer at least 3 days before removing the lock.

**Replace the 1st sentence of the 1st paragraph of section 5-1.39C(2) with:**

10-19-12

Section 5-1.39C(2) applies if a plant establishment period of 3 years or more is shown on the *Notice to Bidders*.

**Replace "working days" in the 1st paragraph of section 5-1.43E(1)(a) with:**

10-19-12

original working days

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## **6 CONTROL OF MATERIALS**

04-19-13

**Replace section 6-2.05C with:**

04-19-13

### **6-2.05C Steel and Iron Materials**

Steel and iron materials must be melted and manufactured in the United States except:

1. Foreign pig iron and processed, pelletized, and reduced iron ore may be used in the domestic production of the steel and iron materials
2. If the total combined cost of the materials does not exceed the greater of 0.1 percent of the total bid or \$2,500, materials produced outside the United States may be used if authorized

Furnish steel and iron materials to be incorporated into the work with certificates of compliance and certified mill test reports. Mill test reports must indicate where the steel and iron were melted and manufactured.

All melting and manufacturing processes for these materials, including an application of a coating, must occur in the United States. Coating includes all processes that protect or enhance the value of the material to which the coating is applied.

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## **7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC**

07-27-12

**Replace "20 days" in the 14th paragraph of section 7-1.04 with:**

09-16-11

25 days

**Replace "90 days" in the 14th paragraph of section 7-1.04 with:**

09-16-11

125 days

**Add between the 18th and 19th paragraphs of section 7-1.04:**

09-16-11

Temporary facilities that could be a hazard to public safety if improperly designed must comply with design requirements described in the Contract for those facilities or, if none are described, with standard design criteria or codes appropriate for the facility involved. Submit shop drawings and design calculations for the temporary facilities and show the standard design criteria or codes used. Shop

drawings and supplemental calculations must be sealed and signed by an engineer who is registered as a civil engineer in the State.

**Replace the 2nd paragraph of section 7-1.11A with:**

07-27-12

A copy of form FHWA-1273 is included in section 7-1.11B. The training and promotion section of section II refers to training provisions as if they were included in the special provisions. The Department specifies the provisions in section 7-1.11D of the *Standard Specifications*. If a number of trainees or apprentices is required, the Department shows the number on the *Notice to Bidders*. Interpret each FHWA-1273 clause shown in the following table as having the same meaning as the corresponding Department clause:

**FHWA-1273 Nondiscrimination Clauses**

FHWA-1273 section	FHWA-1273 clause	Department clause
Training and Promotion	In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.	If section 7-1.11D applies, section 7-1.11D supersedes this subparagraph.
Records and Reports	If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.	If the Contract requires on-the-job training, collect and report training data.

**Replace the form in section 7-1.11B with:**

07-20-12

## REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

### ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

### I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

### II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

**1. Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under



this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

**2. EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

**3. Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

**4. Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

**5. Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

**6. Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

**7. Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

**8. Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar

with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

**9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

#### **10. Assurance Required by 49 CFR 26.13(b):**

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

**11. Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

### III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

### IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

#### 1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions

of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or



will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

## **2. Withholding**

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

## **3. Payrolls and basic records**

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-

Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

#### 4. Apprentices and trainees

##### a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly

rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

##### b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

**5. Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

**6. Subcontracts.** The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

**7. Contract termination: debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

**8. Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

**9. Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

**10. Certification of eligibility.**

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

**V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT**

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

**1. Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

**2. Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

**3. Withholding for unpaid wages and liquidated damages.** The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

**4. Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

## VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is

evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

## VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

## VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:



"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

#### **IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

#### **X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION**

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

##### **1. Instructions for Certification – First Tier Participants:**

- a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.
- b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this

covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contract). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.



i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

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## **2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:**

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

## **2. Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which

this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

\* \* \* \* \*

**Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:**

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

\* \* \* \* \*

**XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

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## 8 PROSECUTION AND PROGRESS

10-19-12

**Replace "working days" in the 1st paragraph of section 8-1.02B(1) with:**

10-19-12

original working days

**Replace "working days" at each occurrence in the 1st paragraph of section 8-1.02C(1) with:**

10-19-12

original working days

**Delete the 4th paragraph of section 8-1.02C(1).**

04-20-12

**Replace "Contract" in the 9th paragraph of section 8-1.02C(1) with:**

10-19-12

work

**Replace the 1st paragraph of section 8-1.02C(3)(a) with:**

04-20-12

Submit a description of your proposed schedule software for authorization.

**Delete the last paragraph of section 8-1.02C(3)(a).**

04-20-12

**Replace section 8-1.02C(3)(b) with:**

10-19-12

**8-1.02C(3)(b) Reserved**

**Delete the 3rd paragraph of section 8-1.02C(5).**

04-20-12

**Replace "Contract" in the last paragraph of section 8-1.02C(5) with:**

10-19-12

original

**Replace "working days" in the 1st paragraph of section 8-1.02D(1) with:**

10-19-12

original working days

**Replace "8-1.02D(1)" in the 2nd paragraph of section 8-1.02D(1) with:**

01-20-12

8-1.02C(1)

**Replace "Contract" in the 3rd paragraph of section 8-1.02D(2) with:**

10-19-12

work

**Replace "Contract" in item 9 in the list in the 4th paragraph of section 8-1.02D(4) with:**

10-19-12

work

**Replace "Contract completion" in the 4th paragraph of section 8-1.02D(6) with:**

10-19-12

work completion

**Replace "Contract working days" in the 4th paragraph of section 8-1.02D(6) with:**

10-19-12

original working days

**Delete items 1.3 and 1.4 in the list in the 1st paragraph of section 8-1.02D(10).**

04-20-12

**Replace the last paragraph of section 8-1.04B with:**

10-19-12

The Department does not adjust time for starting before receiving notice of Contract approval.

**Replace the 1st paragraph of section 8-1.05 with:**

10-19-12

Contract time starts on the last day specified to start job site activities in section 8-1.04 or on the day you start job site activities, whichever occurs first.

**Replace the 2nd paragraph of section 8-1.05 with:**

10-19-12

Complete the work within the Contract time.

**Delete "unless the Contract is suspended for reasons unrelated to your performance" in the 4th paragraph of section 8-1.05.**

10-19-12

**Replace the headings and paragraphs in section 8-1.06 with:**

10-19-12

The Engineer may suspend work wholly or in part due to conditions unsuitable for work progress. Provide for public safety and a smooth and unobstructed passageway through the work zone during the suspension as specified under sections 7-1.03 and 7-1.04. Providing the passageway is force account work. The Department makes a time adjustment for the suspension due to a critical delay.

The Engineer may suspend work wholly or in part due to your failure to (1) fulfill the Engineer's orders, (2) fulfill a Contract part, or (3) perform weather-dependent work when conditions are favorable so that weather-related unsuitable conditions are avoided or do not occur. The Department may provide for a smooth and unobstructed passageway through the work during the suspension and deduct the cost from payments. The Department does not make a time adjustment for the suspension.

Upon the Engineer's order of suspension, suspend work immediately. Resume work when ordered.

**Replace the 1st sentence in the 1st paragraph of section 8-1.07B with:**

10-19-12

For a critical delay, the Department may make a time adjustment.

**Add to the end of section 8-1.07C:**

10-19-12

The Department does not make a payment adjustment for overhead incurred during non-working days that extend the Contract into an additional construction season.

**Replace the 1st paragraph of section 8-1.07C with:**

10-19-12

For an excusable delay that affects your costs, the Department may make a payment adjustment.

**Replace "8-1.08B and 8-1.08C" in the 1st paragraph of section 8-1.10A with:**

08-05-11

8-1.10B and 8-1.10C

**Replace section 8-1.10D with:**

10-19-12

**8-1.10D Reserved**

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

**9 PAYMENT**

01-18-13

**Replace item 1 in the 3rd paragraph of section 9-1.03 with:**

01-18-13

1. Full compensation for all work involved in each bid item shown on the Bid Item List by the unit of measure shown for that bid item

**Replace "in" in the 3rd paragraph of section 9-1.04A with:**

10-19-12

for

**Add to the end of section 9-1.04A:**

10-19-12

For nonsubcontracted work paid by force account for a contract with a TRO bid item, the markups are those shown in the following table instead of those specified in sections 9-1.04B–D:

Cost	Percent markup
Labor	30
Materials	10
Equipment rental	10

Delete ", Huntington Beach," in the 3rd paragraph of section 9-1.07A.

04-20-12

Replace the formula in section 9-1.07B(2) with:

04-20-12

$$Qh = HMATT \times Xa$$

Replace "weight of dry aggregate" in the definition of the variable *Xa* in section 9-1.07B(2) with:

04-20-12

total weight of HMA

Replace the formula in section 9-1.07B(3) with:

04-20-12

$$Qrh = RHMATT \times 0.80 \times Xarb$$

Replace "weight of dry aggregate" in the definition of the variable *Xarb* in section 9-1.07B(3) with:

04-20-12

total weight of rubberized HMA

Replace the heading of section 9-1.07B(4) with:

04-20-12

**Hot Mix Asphalt with Modified Asphalt Binder**

Add between "in" and "modified" in the introductory clause of section 9-1.07B(4):

04-20-12

HMA with

Replace the formula in section 9-1.07B(4) with:

04-20-12

$$Qmh = MHMATT \times [(100 - Xam) / 100] \times Xmab$$

Replace "weight of dry aggregate" in the definition of the variable *Xmab* in section 9-1.07B(4) with:

04-20-12

total weight of HMA

Replace the formula in section 9-1.07B(5) with:

04-20-12

$$Qrap = HMATT \times Xaa$$

Replace "weight of dry aggregate" in the definitions of the variables *Xaa* and *Xta* in section 9-1.07B(5) with:

04-20-12

total weight of HMA

**Add after the variable definitions in section 9-1.07B(9):**

04-20-12

The quantity of extender oil is included in the quantity of asphalt.

**Replace the headings and paragraphs in section 9-1.11 with:**

10-19-12

**9-1.11A General**

Section 9-1.11 applies if a bid item for time-related overhead is included in the Contract. If a bid item for time-related overhead is included, you must exclude the time-related overhead from every other bid item price.

**9-1.11B Payment Quantity**

The TRO quantity does not include the number of working days to complete plant establishment work.

For a contract with a TRO lump sum quantity on the Bid Item List, the Department pays you based on the following conversions:

1. LS unit of measure is replaced with WDAY
2. Lump sum quantity is replaced with the number of working days bid
3. Lump sum unit price is replaced with the item total divided by the number of working days bid

**9-1.11C Payment Inclusions**

Payment for the TRO bid item includes payment for time-related field- and home-office overhead for the time required to complete the work.

The field office overhead includes time-related expenses associated with the normal and recurring construction activities not directly attributed to the work, including:

1. Salaries, benefits, and equipment costs of:
  - 1.1. Project managers
  - 1.2. General superintendents
  - 1.3. Field office managers
  - 1.4. Field office staff assigned to the project
2. Rent
3. Utilities
4. Maintenance
5. Security
6. Supplies
7. Office equipment costs for the project's field office

The home-office overhead includes the fixed general and administrative expenses for operating your business, including:

1. General administration
2. Insurance
3. Personnel and subcontract administration
4. Purchasing
5. Accounting
6. Project engineering and estimating

Payment for the TRO bid item does not include payment for:

1. The home-office overhead expenses specifically related to:
  - 1.1. Your other contracts or other businesses
  - 1.2. Equipment coordination
  - 1.3. Material deliveries
  - 1.4. Consultant and legal fees
2. Non-time-related costs and expenses such as mobilization, licenses, permits, and other charges incurred once during the Contract

3. Additional overhead involved in incentive/disincentive provisions to satisfy an internal milestone or multiple calendar requirements
4. Additional overhead involved in performing additional work that is not a controlling activity
5. Overhead costs incurred by your subcontractors of any tier or suppliers

#### **9-1.11D Payment Schedule**

For progress payments, the total work completed for the TRO bid item is the number of working days shown for the pay period on the *Weekly Statement of Working Days*.

For progress payments, the Department pays a unit price equal to the lesser of the following amounts:

1. Price per working day as bid or as converted under section 9-1.11B.
2. 20 percent of the total bid divided by the number of original working days

For a contract without plant establishment work, the Department pays you the balance due of the TRO item total as specified in section 9-1.17B.

For a contract with plant establishment work, the Department pays you the balance due of the TRO item total in the 1st progress payment after all non-plant establishment work is completed.

#### **9-1.11E Payment Adjustments**

The 3rd paragraph of section 9-1.17C does not apply.

The Department does not adjust the unit price for an increase or decrease in the TRO quantity except as specified in section 9-1.11E.

Section 9-1.17D(2)(b) does not apply except as specified for the audit report below.

If the TRO bid item quantity exceeds 149 percent of the quantity shown on the Bid Item List or as converted under section 9-1.11B, the Engineer may adjust or you may request an adjustment of the unit price for the excess quantity. For the adjustment, submit an audit report within 60 days of the Engineer's request. The report must be prepared as specified for an audit report for an overhead claim in section 9-1.17D(2)(b).

Within 20 days of the Engineer's request, make your financial records available for an audit by the State for the purpose of verifying the actual rate of TRO described in your audit. The actual rate of TRO described is subject to the Engineer's authorization.

The Department pays the authorized actual rate for TRO in excess of 149 percent of the quantity shown on the Bid Item List or as converted under section 9-1.11B.

The Department pays for 1/2 the cost of the report; the Contractor pays for the other 1/2. The cost is determined under section 9-1.05.

**Delete "revised Contract" in item 1 of the 1st paragraph of section 9-1.16E(2).**

10-19-12

**Replace "2014" in the 1st paragraph of section 9-1.16F with:**

2020

10-19-12

**Replace the 2nd paragraph of section 9-1.17C with:**

Submit either a written acceptance of the proposed final estimate or a claim statement postmarked or hand delivered before the 31st day after receiving the proposed final estimate.

10-19-12



**Add between "the" and "final estimate" in the 1st sentence in the 3rd paragraph of section 9-1.17C:**

10-19-12

proposed

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

## **DIVISION II GENERAL CONSTRUCTION**

### **10 GENERAL**

04-19-13

**Replace the headings and paragraphs in section 10 with:**

04-19-13

#### **10-1 GENERAL**

##### **10-1.01 GENERAL**

Section 10 includes general specifications for general construction work.

##### **10-1.02 WORK SEQUENCING**

Before obliterating any traffic stripes, pavement markings, and pavement markers to be replaced at the same location, reference the stripes, markings, and markers. Include limits and transitions with control points to reestablish the new stripes, markings, and markers.

##### **10-1.03 TIME CONSTRAINTS**

Reserved

##### **10-1.04 TRAINING AND MEETINGS**

Training and meetings are held at times and locations you and the Engineer agree to.

##### **10-1.05–10-1.10 RESERVED**

#### **10-2 SUSTAINABLE DESIGN REQUIREMENTS**

##### **10-2.01 GENERAL**

###### **10-2.01A General**

Reserved

###### **10-2.01B–10-2.01H Reserved**

##### **10-2.02 CALGREEN TIER 1**

###### **10-2.02A–10-2.02H Reserved**

##### **10-2.03 LEED**

###### **10-2.03A–10-2.03H Reserved**

##### **10-3–10-5 RESERVED**

#### **10-6 JOB SITE WATER CONTROL**

##### **10-6.01 GENERAL**

Section 10-6 includes specifications for controlling water to provide a dry working area at the job site.

##### **10-6.02 WATER-FILLED COFFERDAM**

Reserved

##### **10-6.03–10-6.10 RESERVED**

##### **10-7–10-20 RESERVED**

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

## 12 TEMPORARY TRAFFIC CONTROL

04-19-13

**Replace the 1st paragraph of section 12-3.01A(4) with:**

10-19-12

Category 2 temporary traffic control devices must be on FHWA's list of acceptable, crashworthy Category 2 hardware for work zones. This list is available on FHWA's Safety Program Web site.

**Replace "project" in the 4th paragraph of section 12-3.02C with:**

10-19-12

work

**Add after "Display" in item 4 in the list in the 2nd paragraph of section 12-3.03B:**

04-19-13

or Alternating Diamond

**Replace "project" in the 3rd paragraph of section 12-3.07C with:**

10-19-12

work

**Replace the 3rd through 5th paragraphs of section 12-4.03 with:**

04-19-13

Submit closure schedules using the Department's Internet-based LCS program to show the locations and times of the proposed closures.

The Department provides LCS training. Request LCS training at least 30 days before submitting the 1st lane closure request. The Department provides the training within 15 days after your request. The training may be web based.

Except for web-based training, the training is held at a time and location you and the Engineer agree to.

For web-based training, the Engineer provides you the website address to access the training.

Within 5 business days after completion of the training, the Department provides LCS accounts and user identifications to your assigned representatives.

Each representative must maintain a unique password and current user information in the LCS.

You will be notified through LCS of unauthorized closures or closures that require coordination with other parties as a condition for authorization.

Submit closure schedule amendments using LCS, including adding additional closures, by noon at least 3 business days before a planned closure. Authorization of amendments will be at the discretion of the Engineer.

Cancel closure requests using LCS at least 48 hours before the time of the closure.

**Add between the 7th and 8th paragraphs of section 12-4.03:**

10-19-12

The contingency plan must identify the operations, equipment, processes, and materials that may fail and delay a reopening of a closure to traffic. List the additional or alternate equipment, materials, or workers necessary to ensure continuing operations and on-time opening of closures whenever a problem occurs. If the additional or alternate equipment, materials, or workers are not on site, specify their location, the method for mobilizing these items, and the required time to complete mobilization.

Based on the Engineer's review, additional materials, equipment, workers, or time to complete operations from that specified in the contingency plan may be required.

Provide a general time-scaled logic diagram displaying the major activities and sequence of planned operations that comply with the requirements of section 12-4.03. For each operation, identify the critical event when the contingency plan will be activated.

Submit any revisions to the contingency plan for an operation at least 3 business days before starting that operation. Do not close any lanes until the contingency plan has been authorized.

The 5th paragraph of section 5-1.23B(1) does not apply to reviewing contingency plans.

**Replace section 12-7 with:**

09-16-11

**12-7 RESERVED**

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

### **13 WATER POLLUTION CONTROL**

04-19-13

04-19-13

**Delete item 3 in the list in the 4th paragraph of section 13-1.01A.**

**Add to section 13-1.01A:**

01-20-12

Comply with the Department's general permit issued by the State Water Resources Control Board for *Order No. 99-06-DWQ, NPDES No. CAS000003, National Pollutant Discharge Elimination System (NPDES) Permit, Statewide Storm Water Permit and Waste Discharge Requirements (WDRs) for the State of California, Department of Transportation (Caltrans)*. The Department's general permit governs stormwater and nonstormwater discharges from the Department's properties, facilities, and activities. The Department's general permit may be viewed at the Web site for the State Water Resources Control Board, Storm Water Program, Caltrans General Permit.

**Add to the list in the 1st paragraph of section 13-1.01D(3)(b):**

10-21-11

3. Have completed SWRCB approved QSD training and passed the QSD exam

**Add to the list in the 2nd paragraph of section 13-1.01D(3)(b):**

10-21-11

3. Have completed SWRCB approved QSP training and passed the QSP exam

**Replace "NEL violation" in item 3.6.2 in the list in the 1st paragraph of section 13-1.01D(3)(c) with:**

04-19-13

receiving water monitoring trigger

**Replace the 1st paragraph in section 13-2.01B with:**

04-19-13

Within 7 days after Contract approval, submit 2 copies of your WPCP for review. Allow 5 business days for review.

After the Engineer authorizes the WPCP, submit an electronic copy and 3 printed copies of the authorized WPCP.

If the RWQCB requires review of the authorized WPCP, the Engineer submits the authorized WPCP to the RWQCB for its review and comment. If the Engineer orders changes to the WPCP based on the RWQCB's comments, amend the WPCP within 3 business days.

**Replace the 1st paragraph in section 13-3.01B(2)(a) with:**

04-19-13

Within 15 days of Contract approval, submit 3 copies of your SWPPP for review. The Engineer provides comments and specifies the date when the review stopped if revisions are required. Change and resubmit a revised SWPPP within 15 days of receiving the Engineer's comments. The Department's review resumes when a complete SWPPP has been resubmitted.

When the Engineer authorizes the SWPPP, submit an electronic copy and 4 printed copies of the authorized SWPPP.

If the RWQCB requires review of the authorized SWPPP, the Engineer submits the authorized SWPPP to the RWQCB for its review and comment. If the Engineer requests changes to the SWPPP based on the RWQCB's comments, amend the SWPPP within 10 days.

**Replace "NELs" in item 3.1 in the 3rd paragraph of section 13-3.01B(2)(a) with:**

04-19-13

receiving water monitoring triggers

**Replace section 13-3.01B(6)(c) with:**

04-19-13

**13-3.01B(6)(c) Receiving Water Monitoring Trigger Report**

Whenever a receiving water monitoring trigger is exceeded, notify the Engineer and submit a receiving water monitoring trigger report within 48 hours after conclusion of a storm event. The report must include:

1. Field sampling results and inspections, including:
  - 1.1. Analytical methods, reporting units, and detection limits
  - 1.2. Date, location, time of sampling, visual observation and measurements
  - 1.3. Quantity of precipitation from the storm event
2. Description of BMPs and corrective actions

**Replace "NEL" in the 6th paragraph of section 13-3.01C(1) with:**

04-19-13

receiving water monitoring trigger

**Replace section 13-3.01C(3) with:**

04-19-13

**13-3.01C(3) Receiving Water Monitoring Trigger**

For a risk level 3 project, receiving water monitoring triggers must comply with the values shown in the following table:

### Receiving Water Monitoring Trigger

Parameter	Test method	Detection limit (min)	Unit	Value
pH	Field test with calibrated portable instrument	0.2	pH	Lower limit = 6.0 Upper limit = 9.0
Turbidity	Field test with calibrated portable instrument	1	NTU	500 NTU max

The storm event daily average for storms up to the 5-year, 24-hour storm must not exceed the receiving water monitoring trigger for turbidity.

The daily average sampling results must not exceed the receiving water monitoring trigger for pH.

**Delete "and NELs are violated" in the 3rd paragraph of section 13-3.03C.**

04-19-13

**Replace "working days" at each occurrence in section 13-3.04 with.**

original working days

10-19-12

**Delete the 1st sentence in the 2nd paragraph of section 13-4.03C(3).**

04-19-13

**Add between the 2nd and 3rd paragraphs of section 13-4.03C(3):**

Manage stockpiles by implementing water pollution control practices on:

1. Active stockpiles before a forecasted storm event
2. Inactive stockpiles according to the WPCP or SWPPP schedule

04-19-13

**Replace the paragraph in section 13-4.04 with:**

Not Used

04-20-12

**Delete "or stockpile" in the 3rd paragraph of section 13-5.02F.**

10-19-12

**Replace section 13-5.03F with:**

**13-5.03F Reserved**

04-20-12

**Delete "or stockpile" in item 1 in the list in the 1st paragraph of section 13-5.03K.**

10-19-12

**Delete the 3rd paragraph of section 13-5.03K.**

10-19-12

**Replace the 2nd sentence in the 1st paragraph of section 13-9.01A with:**

10-19-12

You may use any of the following systems for temporary concrete washout:

1. Temporary concrete washout facility
2. Portable temporary concrete washout
3. Temporary concrete washout bin

**Replace the 2nd paragraph of section 13-9.01B with:**

10-19-12

Retain and submit an informational submittal for records of disposed concrete waste.

**Delete the 4th paragraph of section 13-9.01B.**

10-19-12

**Delete "if authorized" in the 1st sentence in the 1st paragraph of section 13-9.02A.**

10-19-12

**Replace "at least 3-inch" in the 3rd sentence in the 1st paragraph of section 13-9.02A with:**

10-19-12

6-inch

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

## **15 EXISTING FACILITIES**

04-19-13

**Replace the 4th paragraph of section 15-2.10B with:**

01-18-13

Instead of using new materials similar in character to those in the existing structure, you may use raising devices to adjust a manhole to grade. Before starting paving work, measure and fabricate raising devices. Raising devices must:

1. Comply with the specifications for section 75 except that galvanizing is not required
2. Have a shape and size that matches the existing frame
3. Be match marked by painting identification numbers on the device and corresponding structure
4. Result in an installation that is equal to or better than the existing one in stability, support, and nonrocking characteristics
5. Be fastened securely to the existing frame without projections above the surface of the road or into the clear opening

**Add to the end of section 15-4.01A(2):**

04-19-13

Allow 20 days for review of the bridge removal work plan.

**Replace the 1st paragraph of section 15-5.01C(1) with:**

10-19-12

Before starting deck rehabilitation activities, complete the removal of any traffic stripes, pavement markings, and pavement markers.

**Replace the 2nd and 3rd paragraphs of section 15-5.01C(2) with:**

10-19-12

Perform the following activities in the order listed:

1. Abrasive blast the deck surface with steel shot. Perform abrasive blasting after the removal of any unsound concrete and placement of any rapid setting concrete patches.
2. Sweep the deck surface.
3. Blow the deck surface clean using high-pressure air.

**Replace the 2nd paragraph of section 15-5.01C(4) with:**

10-19-12

Before removing asphalt concrete surfacing, verify the depth of the surfacing at the supports and midspans of each structure (1) in each shoulder, (2) in the traveled way, and (3) at the roadway crown, if a crown is present.

**Delete "and concrete expansion dams" in the 3rd paragraph of section 15-5.01C(4).**

04-19-13

**Replace the 2nd paragraph of section 15-5.03A(2) with:**

10-19-12

For a contract with less than 60 original working days, submit certificates of compliance for the filler material and bonding agents.

**Replace "51-1.02C" in the 1st paragraph of section 15-5.03B with:**

04-19-13

51-1.02F

**Replace the 4th paragraph of section 15-5.03B with:**

10-19-12

For a contract with less than 60 original working days, alternative materials must be authorized before use.

**Add between the 5th and 6th paragraphs of section 15-5.03C:**

10-19-12

The final surface finish of the patched concrete surface must comply with section 51-1.03F.

**Delete the 4th paragraph of section 15-5.05C.**

10-19-12

**Replace "51-1.03F(5)" in the 3rd paragraph of section 15-5.06C(1) with:**

10-19-12

51-1.01D(4)

**Replace "51-1.03E(5)" in the 5th paragraph of section 15-5.06C(1) with:**

10-19-12

51-1.03F(5)

**Delete the 9th paragraph of section 15-5.06C(1).**

10-19-12

**Delete the 15th paragraph of section 15-5.06C(1).**

04-19-13

**Add to section 15-5.06C(1):**

Texture the polyester concrete surface before gelling occurs by longitudinal tining under 51-1.03F(5)(b)(iii), except do not perform initial texturing.

10-19-12

**Replace section 15-5.06C(2) with:**

**15-5.06C(2) Reserved**

04-19-13

**Delete the 3rd paragraph of section 15-5.06D.**

04-19-13

**Replace the 1st paragraph in section 15-5.07B(4) with:**

Payment for furnishing dowels is not included in the payment for core and pressure grout dowel.

10-19-12

**Replace section 15-5.09 with:**

## **15-5.09 POLYESTER CONCRETE EXPANSION DAMS**

04-19-13

### **15-5.09A General**

Section 15-5.09 includes specifications for constructing polyester concrete expansion dams.

Polyester concrete expansion dams must comply with the specifications for polyester concrete overlays in section 15-5.06, except a trial slab is not required.

Reinforcement must comply with section 52.

### **15-5.09B Materials**

Not Used

### **15-5.09C Construction**

For new asphalt concrete overlays, place the asphalt concrete overlay before starting polyester concrete activities. Saw cut and remove asphalt concrete at expansion dam locations.

For existing asphalt concrete overlays, remove expansion dams and asphalt concrete to the limits shown. Removing expansion dams must comply with section 15-4 except a bridge removal work plan is not required.

Where a portion of the asphalt concrete overlay is to remain, saw cut a 2-inch-deep neat line along the edge to remain in place before removing the asphalt concrete. Do not damage the existing surfacing to remain in place.

Prepare the deck surface under section 15-5.01C(2).

You may use a mechanical mixer to mix the polyester concrete for expansion dams. The mixer capacity must not exceed 9 cu ft unless authorized. Initiate the resin and thoroughly blend it immediately before mixing it with the aggregate. Mix the polyester concrete for at least 2 minutes before placing.

The application rate of methacrylate resin must be approximately 100 sq ft/gal.





**Replace the heading of section 19-3.03C with:**

04-19-13

**19-3.03B(4) Cofferdams**

**Replace the heading of section 19-3.03D with:**

04-19-13

**19-3.03B(5) Water Control and Foundation Treatment**

**Replace the 1st paragraph of section 19-3.03E(3) with:**

01-20-12

Compact structure backfill behind lagging of soldier pile walls by hand tamping, mechanical compaction, or other authorized means.

**Replace the 2nd paragraph of section 19-3.03F with:**

01-20-12

Do not backfill over or place material over slurry cement backfill until 4 hours after placement. When concrete sand is used as aggregate and the in-place material is free draining, you may start backfilling as soon as the surface water is gone.

**Add between the 2nd and 3rd paragraphs of section 19-3.03K:**

01-20-12

Before you excavate for the installation of ground anchors in a wall zone:

1. Complete stability testing
2. Obtain authorization of test data

**Replace the 2nd sentence of the 7th paragraph of section 19-3.03K:**

01-20-12

Stop construction in unstable areas until remedial measures have been taken. Remedial measures must be submitted and authorized.

**Add between the 8th and 9th paragraphs of section 19-3.03K:**

01-20-12

When your excavation and installation methods result in a discontinuous wall along any soil nail row, the ends of the structurally completed wall section must extend beyond the ends of the next lower excavation lift by a distance equal to twice the lift height. Maintain temporary slopes at the ends of each wall section to ensure slope stability.

**Replace the 9th paragraph of section 19-3.03K:**

01-20-12

Do not excavate to the next underlying excavation lift until the following conditions have been attained for the portion of the soil nail or ground anchor wall in the current excavation lift:

1. Soil nails or ground anchors are installed and grouted.
2. Reinforced shotcrete facing is constructed.
3. Grout and shotcrete have cured for at least 72 hours.
4. Specified tests are complete for that portion of wall and the results are authorized.
5. Soil nail facing anchorages are attached or ground anchors are locked off.

01-18-13

01-20-12

**Replace the 2nd sentence in the 7th paragraph of section 19-3.04 with:**

01-18-13

Structure excavation more than 0.5 foot from the depth shown is paid for as a work-character change if you request an adjustment or the Engineer orders an adjustment.

**Replace "Contract completion time" in the 8th paragraph of section 19-6.03D with:**

10-19-12

work completion date

**Add to section 19:**

01-18-13

**19-10-19-20 RESERVED**

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

## **20 LANDSCAPE**

10-19-12

10-19-12

**Add "preparing holes," before "and" in the 1st paragraph of section 20-7.01A.**

**Replace "and handling" in the 1st paragraph of section 20-7.03A with:**

10-19-12

handling, and preparing holes

**Replace the 1st paragraph of section 20-7.03D with:**

10-19-12

The location of all plants is as shown unless the Engineer designates otherwise. If the Engineer designates the location of plants, the location will be marked by stakes, flags, or other markers.

**Replace item 1 in the list in the 1st paragraph of section 20-7.03I(1) with:**

10-19-12

1. Preparing holes and planting plants

**Delete "Prepare Hole," in the last paragraph of section 20-7.04.**

10-19-12

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

## **21 EROSION CONTROL**

04-19-13

**Replace ", bonded fiber matrix, and polymer-stabilized fiber matrix" in the 1st paragraph of section 21-1.01B with:**

04-20-12

and bonded fiber matrix

04-20-12

**Delete the last paragraph of section 21-1.02E.**

**Replace section 21-1.02F(2) with:**

04-20-12

**21-1.02F(2) Reserved**

**Replace section 21-1.02J with:**

04-20-12

**21-1.02J Reserved**

**Replace the row for organic matter content in the table in the 4th paragraph of section 21-1.02M with:**

01-18-13

Organic matter content	TMECC 05.07-A Loss-on-ignition organic matter method (LOI) % dry weight basis	30–100
------------------------	-------------------------------------------------------------------------------------	--------

**Replace the paragraph in section 21-1.02P with:**

10-19-12

Fiber roll must be a premanufactured roll filled with rice or wheat straw, wood excelsior, or coconut fiber. Fiber roll must be covered with biodegradable jute, sisal, or coir fiber netting secured tightly at each end and must be one of the following:

1. 8 to 10 inches in diameter and at least 1.1 lb/ft
2. 10 to 12 inches in diameter and at least 3 lb/ft

Fiber roll must have a minimum functional longevity of 1 year.

**Add between the 1st and 2nd paragraphs of section 21-1.03A:**

01-18-13

Remove and dispose of trash, debris, and weeds in areas to receive erosion control materials.

Remove and dispose of loose rocks larger than 2-1/2 inches in maximum dimension unless otherwise authorized.

Protect the traveled way, sidewalks, lined drainage channels, and existing vegetation from overspray of hydraulically-applied material.

**Replace section 21-1.03B with:**

01-18-13

**21-1.03B Reserved**

**Replace "3 passes" in item 2 in the list in the 2nd paragraph of section 21-1.03G with:**

04-19-13

2 passes

04-20-12

10-19-12

If soil conditions do not permit driving the stakes into the soil, drill pilot holes to facilitate driving of the stakes.

01-18-13

04-20-12

04-20-12

04-20-12

## 04-20-12

## 01-18-13

01-18-13

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### **37-1.01B Definitions**

Reserved

### **37-1.01C Submittals**

Reserved

### **37-1.01D Quality Control and Assurance**

#### **37-1.01D(1) General**

Reserved

#### **37-1.01D(2) Prepaving Conference**

For seal coats and micro-surfacing, schedule a prepaving conference at a mutually agreed upon time and place to meet with the Engineer.

Prepaving conference attendees must sign an attendance sheet provided by the Engineer. The prepaving conference must be attended by your:

1. Project superintendent
2. Paving construction foreman
3. Traffic control foreman

Be prepared to discuss:

1. Quality control
2. Acceptance testing
3. Placement
4. Training on placement methods
5. Checklist of items for proper placement
6. Unique issues specific to the project, including:
  - 6.1. Weather
  - 6.2. Alignment and geometrics
  - 6.3. Traffic control issues
  - 6.4. Haul distances
  - 6.5. Presence and absence of shaded areas
  - 6.6. Any other local issues

### **37-1.02 MATERIALS**

Not Used

### **37-1.03 CONSTRUCTION**

Not Used

### **37-1.04 PAYMENT**

Not Used

**Replace "Reserved" in section 37-2.01D(1) with:**

01-18-13

Aggregate suppliers, chip spreader operators, emulsion distributor, and for coated chips, the coated chips producer must attend the prepaving conference.

**Add to section 37-2.03A:**

04-20-12

If you fail to place the permanent traffic stripes and pavement markings within the specified time, the Department withholds 50 percent of the estimated value of the seal coat work completed that has not received permanent traffic stripes and pavement markings.

**Add to section 37-3.01D(1):**

01-18-13

Micro-surfacing spreader operators must attend the prepping conference.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

**39 HOT MIX ASPHALT**

02-22-13

**Add to section 39-1.01B:**

02-22-13

**processed RAP:** RAP that has been fractionated.

**substitution rate:** Amount of RAP aggregate substituted for virgin aggregate in percent.

**binder replacement:** Amount of RAP binder in OBC in percent.

**surface course:** Upper 0.2 feet of HMA exclusive of OGFC.

**Add to the end of the paragraph in section 39-1.02A:**

10-19-12

as shown

**Replace the paragraphs in section 39-1.02F with:**

02-22-13

**39-1.02F(1) General**

You may produce HMA Type A or B using RAP. HMA produced using RAP must comply with the specifications for HMA, except aggregate quality specifications do not apply to RAP. You may substitute RAP at a substitution rate not exceeding 25 percent of the aggregate blend. Do not use RAP in OGFC and RHMA-G.

Assign the substitution rate of RAP aggregate for virgin aggregate with the JMF submittal. The JMF must include the percent of RAP used.

Provide enough space for meeting RAP handling requirements at your facility. Provide a clean, graded, well-drained area for stockpiles. Prevent material contamination and segregation.

If RAP is from multiple sources, blend the RAP thoroughly and completely. RAP stockpiles must be homogeneous.

Isolate the processed RAP stockpiles from other materials. Store processed RAP in conical or longitudinal stockpiles. Processed RAP must not be agglomerated or be allowed to congeal in large stockpiles.

AASHTO T 324 (Modified) is AASHTO T 324, "Hamburg Wheel-Track Testing of Compacted Hot Mix Asphalt (HMA)," with the following parameters:

1. Target air voids must equal  $7 \pm 1$  percent
2. Number of test specimens must be 4
3. Test specimen must be a 6-inch gyratory compacted specimen
4. Test temperature must be set at  $140 \pm 2$  degrees F
5. Measurements for impression must be taken at every 100 passes
6. Inflection point defined as the number of wheel passes at the intersection of the creep slope and the stripping slope
7. Testing shut off must be set at 25,000 passes

**39-1.02F(2) Substitution Rate of 15 Percent or Less**

For a RAP substitution rate of 15 percent or less, you may stockpile RAP during the entire project.

**39-1.02F(3) Substitution Rate Greater than 15 Percent**

For a RAP substitution rate greater than 15 percent, fractionate RAP into 2 sizes, a coarse fraction RAP retained on 1/4-inch screen and a fine fraction RAP passing 1/4-inch screen.

Sample and test processed RAP at a minimum frequency of 1 sample per 1000 tons with a minimum of 6 samples for each processed RAP stockpile. The asphalt binder content and specific gravity must meet the processed RAP quality characteristics. If a processed RAP stockpile is augmented, sample and test processed RAP quality characteristics at a minimum frequency of 1 sample per 500 tons of augmented RAP.

The processed RAP asphalt binder content must be within  $\pm 2.0$  percent of the average processed RAP stockpile asphalt binder content when tested under ASTM D 2172, Method B. If a new processed RAP stockpile is required, the average binder content of the new processed RAP stockpile must be within  $\pm 2.0$  percent of the average binder content of the original processed RAP stockpile.

The maximum specific gravity for processed RAP must be within  $\pm 0.06$  when tested under California Test 309 of the average maximum specific gravity reported on page 4 of your *Contractor Hot Mix Asphalt Design Data* form.

**Replace "less than 10 percent" in note "b" in the table in the 5th paragraph of section 39-1.02E with:**

01-20-12

10 percent or less

**Replace items 7 and 8 in the 5th paragraph of section 39-1.03A with:**

02-22-13

7. Substitution rate by more than 5 percent if your assigned RAP substitution rate is 15 percent or less
8. Substitution rate by more than 3 percent if your assigned RAP substitution rate is greater than 15 percent
9. Average binder content by more than 2 percent from the average binder content of the original processed RAP stockpile used in the mix design
10. Maximum specific gravity of processed RAP by more than  $\pm 0.060$  from the average maximum specific gravity of processed RAP reported on page 4 of your *Contractor Hot Mix Asphalt Design Data* form
11. Any material in the JMF

**Replace the 1st paragraph of section 39-1.03B with:**

02-22-13

Perform a mix design that produces HMA with the values for the quality characteristics shown in the following table:



### HMA Mix Design Requirements

Quality characteristic	Test method	HMA type		
		A	B	RHMA-G
Air void content (%)	California Test 367	4.0	4.0	Section 39-1.03B
Voids in mineral aggregate (% min.)	California Test 367			
No. 4 grading		17.0	17.0	--
3/8" grading		15.0	15.0	--
1/2" grading		14.0	14.0	18.0–23.0
3/4" grading		13.0	13.0	18.0–23.0
Voids filled with asphalt (%)	California Test 367			Note a
No. 4 grading		65.0–75.0	65.0–75.0	
3/8" grading		65.0–75.0	65.0–75.0	
1/2" grading		65.0–75.0	65.0–75.0	
3/4" grading		65.0–75.0	65.0–75.0	
Dust proportion	California Test 367			Note a
No. 4 and 3/8" gradings		0.6–1.2	0.6–1.2	
1/2" and 3/4" gradings		0.6–1.2	0.6–1.2	
Stabilometer value (min.)	California Test 366			
No. 4 and 3/8" gradings		30	30	--
1/2" and 3/4" gradings		37	35	23

<sup>a</sup> Report this value in the JMF submittal.

For RAP substitution rate greater than 15 percent, the mix design must comply with the additional quality characteristics shown in the following table:

### Additional HMA Mix Design Requirements for RAP Substitution Rate Greater Than 15 Percent

Quality characteristic	Test method	HMA type		
		A	B	RHMA-G
Hamburg wheel track (minimum number of passes at 0.5 inch average rut depth)	AASHTO T 324 (Modified) <sup>a</sup>			
PG-58		10,000	10,000	--
PG-64		15,000	15,000	
PG-70		20,000	20,000	
PG-76 or higher		25,000	25,000	
Hamburg wheel track (inflection point minimum number of passes)	AASHTO T 324 (Modified) <sup>a</sup>			
PG-58		10,000	10,000	--
PG-64		10,000	10,000	
PG-70		12,500	12,500	
PG-76 or higher		15000	15000	
Moisture susceptibility (minimum dry strength, psi)	California Test 371 <sup>a</sup>	120	120	--
Moisture susceptibility (tensile strength ration, %)	California Test 371 <sup>a</sup>	70	70	--

<sup>a</sup>Test plant produced HMA.

For HMA with RAP, the maximum binder replacement must be 25.0 percent of OBC for surface course and 40.0 percent of OBC for lower courses.

For HMA with a binder replacement less than or equal to 25 percent of OBC, you may request that the PG asphalt binder grade with upper and lower temperature classifications be reduced by 6 degrees C from the specified grade.

For HMA with a binder replacement greater than 25 percent but less than or equal to 40 percent of OBC, you must use a PG asphalt binder grade with upper and lower temperature classifications reduced by 6 degrees C from the specified grade.

**Replace item 4 in the list in the 1st paragraph of section 39-1.03C with:**

01-20-12

4. JMF renewal on a *Caltrans Job Mix Formula Renewal* form, if applicable

**Add after the last paragraph of section 39-1.03C:**

02-22-13

For RAP substitution rate greater than 15 percent, submit with the JMF submittal:

1. California Test 371 tensile strength ratio and minimum dry strength test results
2. AASHTO T 324 (Modified) test results

For RAP substitution rate greater than 15 percent, submit California Test 371 and AASHTO T 324 (Modified) test results to the Engineer and to:

Moisture\_Tests@dot.ca.gov

**Replace the 2nd paragraph of section 39-1.03E with:**

04-20-12

Use the OBC specified on your *Contractor Hot Mix Asphalt Design Data* form. No adjustments to asphalt binder content are allowed. Based on your testing and production experience, you may submit an adjusted aggregate gradation TV on a *Contractor Job Mix Formula Proposal* form before verification testing. Aggregate gradation TV must be within the TV limits specified in the aggregate gradation tables.

**Add between the 3rd and 4th paragraphs of section 39-1.03E:**

04-20-12

Asphalt binder set point for HMA must be the OBC specified on your *Contractor Hot Mix Asphalt Design Data* form. When RAP is used, asphalt binder set point for HMA must be:

$$\text{Asphalt Binder Set Point} = \frac{\frac{BC_{OBC}}{\left(1 - \frac{BC_{OBC}}{100}\right)} - R_{RAP} \left[ \frac{BC_{RAP}}{\left(1 - \frac{BC_{RAP}}{100}\right)} \right]}{100 + \frac{BC_{OBC}}{\left(1 - \frac{BC_{OBC}}{100}\right)}}$$

Where:

$BC_{OBC}$  = optimum asphalt binder content, percent based on total weight of mix

$R_{RAP}$  = RAP ratio by weight of aggregate

$BC_{RAP}$  = asphalt binder content of RAP, percent based on total weight of RAP mix

**Replace item 4 in the list in the 8th paragraph of section 39-1.03E with:**

04-20-12

4. HMA quality specified in the table titled "HMA Mix Design Requirements" except:
  - 4.1. Air void content, design value  $\pm 2.0$  percent
  - 4.2. Voids filled with asphalt, report only
  - 4.3. Dust proportion, report only

**Replace the 12th paragraph of section 39-1.03E with:**

04-20-12

If tests on plant-produced samples do not verify the JMF, the Engineer notifies you and you must submit a new JMF or submit an adjusted JMF based on your testing. JMF adjustments may include a change in aggregate gradation TV within the TV limits specified in the aggregate gradation tables.

**Replace the 14th paragraph of section 39-1.03E with:**

01-20-12

A verified JMF is valid for 12 months.

**Replace the last sentence in the 15th paragraph of section 39-1.03E with:**

01-20-12

This deduction does not apply to verifications initiated by the Engineer or JMF renewal.

**Replace the 16th paragraph of section 39-1.03E with:**

02-22-13

Except for RAP substitution rate greater than 15 percent, for any HMA produced under the QC/QA process the Department does not use California Test 371 test results for verification.

**Add between the 1st and 2nd paragraphs of section 39-1.03F:**

04-20-12

Target asphalt binder content on your Contractor *Job Mix Formula Proposal* form and the OBC specified on your *Contractor Hot Mix Asphalt Design Data* form must be the same.

01-20-12

**Delete the 4th paragraph of section 39-1.03F.**

**Replace items 3 and 5 in the list in the 6th paragraph of section 39-1.03F with:**

01-20-12

3. Engineer verifies each proposed JMF renewal within 20 days of receiving verification samples.
5. For each HMA type and aggregate gradation specified, the Engineer verifies at the Department's expense 1 proposed JMF renewal within a 12-month period.

**Add between the 6th and 7th paragraphs of section 39-1.03F:**

01-20-12

The most recent aggregate quality test results within the past 12 months may be used for verification of JMF renewal or the Engineer may perform aggregate quality tests for verification of JMF renewal.

**Replace section 39-1.03G with:**

04-20-12

**39-1.03G Job Mix Formula Modification**

For an accepted JMF, you may change asphalt binder source one time during production.

Submit your modified JMF request a minimum of 3 business days before production. Each modified JMF submittal must consist of:

1. Proposed modified JMF on *Contractor Job Mix Formula Proposal* form
2. Mix design records on *Contractor Hot Mix Asphalt Design Data* form for the accepted JMF to be modified
3. JMF verification on *Hot Mix Asphalt Verification* form for the accepted JMF to be modified
4. Quality characteristics test results for the modified JMF as specified in section 39-1.03B. Perform tests at the mix design OBC as shown on the *Contractor Asphalt Mix Design Data* form
5. If required, California Test 371 test results for the modified JMF.

With an accepted modified JMF submittal, the Engineer verifies each modified JMF within 5 business days of receiving all verification samples. If California Test 371 is required, the Engineer tests for California Test 371 within 10 days of receiving verification samples.

The Engineer verifies the modified JMF after the modified JMF HMA is placed on the project and verification samples are taken within the first 750 tons following sampling requirements in section 39-1.03E, "Job Mix Formula Verification." The Engineer tests verification samples for compliance with:

1. Stability as shown in the table titled "HMA Mix Design Requirements"
2. Air void content at design value  $\pm 2.0$  percent
3. Voids in mineral aggregate as shown in the table titled "HMA Mix Design Requirements"
4. Voids filled with asphalt, report only
5. Dust proportion, report only

If the modified JMF is verified, the Engineer revises your *Hot Mix Asphalt Verification* form to include the new asphalt binder source. Your revised form will have the same expiration date as the original form.

If a modified JMF is not verified, stop production and any HMA placed using the modified JMF is rejected.

The Engineer deducts \$2,000 from payments for each modified JMF verification. The Engineer deducts an additional \$2,000 for each modified JMF verification that requires California Test 371.

#### **Add to section 39-1.03:**

01-20-12

#### **39-1.03H Job Mix Formula Acceptance**

You may start HMA production if:

1. The Engineer's review of the JMF shows compliance with the specifications.
2. The Department has verified the JMF within 12 months before HMA production.
3. The Engineer accepts the verified JMF.

#### **Replace "3 days" in the 1st paragraph of section 39-1.04A with:**

3 business days

01-20-12

#### **Replace the 2nd sentence in the 2nd paragraph of section 39-1.04A with:**

During production, take samples under California Test 125. You may sample HMA from:

01-20-12

#### **Replace the 2nd paragraph of section 39-1.04E with:**

For RAP substitution rate of 15 percent or less, sample RAP once daily.

For RAP substitution rate of greater than 15percent, sample processed RAP twice daily.

Perform QC testing for processed RAP aggregate gradation under California Test 367, appendix B, and submit the results with the combined aggregate gradation.

02-22-13

**Replace "5 days" in the 1st paragraph of section 39-1.06 with:**

01-20-12

5 business days

**Replace the 3rd paragraph of section 39-1.08A with:**

04-20-12

During production, you may adjust hot or cold feed proportion controls for virgin aggregate and RAP.

**Add to section 39-1.08A:**

04-20-12

During production, asphalt binder set point for HMA Type A, HMA Type B, HMA Type C, and RHMA-G must be the OBC shown in *Contractor Hot Mix Asphalt Design Data* form. For OGFC, asphalt binder set point must be the OBC shown on *Caltrans Hot Mix Asphalt Verification* form. If RAP is used, asphalt binder set point for HMA must be calculated as specified in section 39-1.03E.

02-22-13

For RAP substitution rate of 15 percent or less, you may adjust the RAP by  $\pm 5$  percent.

For RAP substitution greater than 15, you may adjust the RAP by  $\pm 3$  percent.

04-20-12

You must request adjustments to the plant asphalt binder set point based on new RAP stockpiles average asphalt binder content. Do not adjust the HMA plant asphalt binder set point until authorized.

**Replace the 3rd paragraph of section 39-1.08B with:**

09-16-11

Asphalt rubber binder must be from 375 to 425 degrees F when mixed with aggregate.

**Replace section 39-1.11 with:**

01-18-13

**39-1.11 CONSTRUCTION**

**39-1.11A General**

Do not place HMA on wet pavement or a frozen surface.

You may deposit HMA in a windrow and load it in the paver if:

1. Paver is equipped with a hopper that automatically feeds the screed
2. Loading equipment can pick up the windrowed material and deposit it in the paver hopper without damaging base material
3. Activities for deposit, pickup, loading, and paving are continuous
4. HMA temperature in the windrow does not fall below 260 degrees F

You may place HMA in 1 or more layers on areas less than 5 feet wide and outside the traveled way, including shoulders. You may use mechanical equipment other than a paver for these areas. The equipment must produce uniform smoothness and texture.

HMA handled, spread, or windrowed must not stain the finished surface of any improvement, including pavement.

Do not use petroleum products such as kerosene or diesel fuel to release HMA from trucks, spreaders, or compactors.

HMA must be free of:

1. Segregation

2. Coarse or fine aggregate pockets
3. Hardened lumps

### **39-1.11B Longitudinal Joints**

#### **39-1.11B(1) General**

Longitudinal joints in the top layer must match specified lane edges. Alternate the longitudinal joint offsets in the lower layers at least 0.5 foot from each side of the specified lane edges. You may request other longitudinal joint placement patterns.

A vertical longitudinal joint of more than 0.15 ft is not allowed at any time between adjacent lanes open to traffic.

For HMA thickness of 0.15 ft or less, the distance between the ends of the adjacent surfaced lanes at the end of each day's work must not be greater than can be completed in the following day of normal paving.

For HMA thickness greater than 0.15 ft, you must place HMA on adjacent traveled way lanes so that at the end of each work shift the distance between the ends of HMA layers on adjacent lanes is from 5 to 10 feet. Place additional HMA along the transverse edge at each lane's end and along the exposed longitudinal edges between adjacent lanes. Hand rake and compact the additional HMA to form temporary conforms. You may place Kraft paper or another authorized bond breaker under the conform tapers to facilitate the taper removal when paving operations resume.

#### **39-1.11B(2) Tapered Notched Wedge**

For divided highways with an HMA lift thickness greater than 0.15 foot, you may construct a 1-foot wide tapered notched wedge joint as a longitudinal joint between adjacent lanes open to traffic. A vertical notch of 0.75 inch maximum must be placed at the top and bottom of the tapered wedge.

The tapered notched wedge must retain its shape while exposed to traffic. Pave the adjacent lane within 1 day.

Construct the tapered portion of the tapered notched wedge with an authorized strike-off device. The strike-off device must provide a uniform slope and must not restrict the main screed of the paver.

You may use a device attached to the screed to construct longitudinal joints that will form a tapered notched wedge in a single pass. The tapered notched wedge must be compacted to a minimum of 91 percent compaction.

Perform QC testing on the completed tapered notch wedge joint as follows:

1. Perform field compaction tests at the rate of 1 test for each 750-foot section along the joint. Select random locations for testing within each 750-foot section.
2. Perform field compaction tests at the centerline of the joint, 6 inches from the upper vertical notch, after the adjacent lane is placed and before opening the pavement to traffic.
3. Determine maximum density test results.
4. Determine percent compaction of the longitudinal joint as the ratio of the average of the field compaction values and the maximum density test results.

For HMA under QC/QA construction process, the additional quality control compaction results associated with the tapered notch wedge will not be included in the computation of any quality factor and process control.

For acceptance of the completed tapered notch wedge joint, take two 4- or 6-inch diameter cores 6 inches from the upper vertical notch of the completed longitudinal joint for every 3,000 feet at locations designated by the Engineer. Take cores after the adjacent lane is placed and before opening the pavement to traffic. Cores must be taken in the presence of the Engineer and must be marked to identify the test sites. Submit the cores. One core will be used for determination of the field density and 1 core will be used for dispute resolution. The Engineer determines:

1. Field compaction by measuring the bulk specific gravity of the cores under California Test 308, Method A
2. Percent compaction as the ratio of the average of the bulk specific gravity of the core for each day's production to the maximum density test value

For HMA under QC/QA construction process, the additional quality assurance testing by the Engineer to determine field compaction associated with the tapered notch wedge will not be included in the Engineer's verification testing and in the computation of any quality factor and process control.

Determine percent compaction values each day the joint is completed and submit values within 24 hours of testing. If the percent compaction of 1 day's production is less than 91 percent, that day's notched wedge joint is rejected. Discontinue placement of the tapered notched wedge and notify the Engineer of changes you will make to your construction process in order to meet the specifications.

For HMA under QC/QA construction process, quantities of HMA placed in the completed longitudinal joint will have a quality factor  $QF_{QC5}$  of 1.0.

#### **39-1.11C Widening Existing Pavement**

If widening existing pavement, construct new pavement structure to match the elevation of the existing pavement's edge before placing HMA over the existing pavement.

#### **39-1.11D Shoulders, Medians, and Other Road Connections**

Until the adjoining through lane's top layer has been paved, do not pave the top layer of:

1. Shoulders
2. Tapers
3. Transitions
4. Road connections
5. Driveways
6. Curve widenings
7. Chain control lanes
8. Turnouts
9. Turn pockets

If the number of lanes changes, pave each through lane's top layer before paving a tapering lane's top layer. Simultaneous to paving a through lane's top layer, you may pave an adjoining area's top layer, including shoulders. Do not operate spreading equipment on any area's top layer until completing final compaction.

#### **39-1.11E Leveling**

If leveling with HMA is specified, fill and level irregularities and ruts with HMA before spreading HMA over the base, existing surfaces, or bridge decks. You may use mechanical equipment other than a paver for these areas. The equipment must produce uniform smoothness and texture. HMA used to change an existing surface's cross slope or profile is not paid for as HMA (leveling).

If placing HMA against the edge of existing pavement, sawcut or grind the pavement straight and vertical along the joint and remove extraneous material.

#### **39-1.11F Compaction**

Rolling must leave the completed surface compacted and smooth without tearing, cracking, or shoving. Complete finish rolling activities before the pavement surface temperature is:

1. Below 150 degrees F for HMA with unmodified binder
2. Below 140 degrees F for HMA with modified binder
3. Below 200 degrees F for RHMA-G

If a vibratory roller is used as a finish roller, turn the vibrator off.

Do not use a pneumatic-tired roller to compact RHMA-G.

For Standard and QC/QA construction processes, if 3/4-inch aggregate grading is specified, you may use a 1/2-inch aggregate grading if the specified total paved thickness is at least 0.15 foot and less than 0.20 foot thick.

Spread and compact HMA under sections 39-3.03 and 39-3.04 if any of the following applies:

1. Specified paved thickness is less than 0.15 foot.
2. Specified paved thickness is less than 0.20 foot and 3/4-inch aggregate grading is specified and used.
3. You spread and compact at:
  - 3.1. Asphalt concrete surfacing replacement areas
  - 3.2. Leveling courses
  - 3.3. Areas for which the Engineer determines conventional compaction and compaction measurement methods are impeded

Do not open new HMA pavement to public traffic until its mid-depth temperature is below 160 degrees F.

If you request and if authorized, you may cool HMA Type A and Type B with water when rolling activities are complete. Apply water under section 17-3.

Spread sand at a rate from 1 to 2 lb/sq yd on new RHMA-G, RHMA-O, and RHMA-O-HB pavement when finish rolling is complete. Sand must be free of clay or organic matter. Sand must comply with section 90-1.02C(4)(c). Keep traffic off the pavement until spreading sand is complete.

**Replace the 5th and 6th paragraphs of section 39-1.12C with:**

07-20-12

On tangents and horizontal curves with a centerline radius of curvature 2,000 feet or more, the  $PI_0$  must be at most 2.5 inches per 0.1-mile section.

On horizontal curves with a centerline radius of curvature between 1,000 feet and 2,000 feet including pavement within the superelevation transitions, the  $PI_0$  must be at most 5 inches per 0.1-mile section.

**Add to section 39-1.12:**

01-20-12

**39-1.12E Reserved**

**Add to section 39-1.14:**

01-20-12

Prepare the area to receive HMA for miscellaneous areas and dikes, including any excavation and backfill as needed.

**Replace "6.8" in item 3 in the list in the 4th paragraph of section 39-1.14 with:**

04-20-12

6.4

**Replace "6.0" in item 3 in the list in the 4th paragraph of section 39-1.14 with:**

04-20-12

5.7

**Replace "6.8" in the 1st paragraph of section 39-1.15B with:**

04-20-12

6.4

**Replace "6.0" in the 1st paragraph of section 39-1.15B with:**

04-20-12

5.7



**Replace the 1st paragraph of section 39-2.02B with:**

02-22-13

Perform sampling and testing at the specified frequency for the quality characteristics shown in the following table:

**Minimum Quality Control—Standard Construction Process**

Quality characteristic	Test method	Minimum sampling and testing frequency	HMA type			
			A	B	RHMA-G	OGFC
Aggregate gradation <sup>a</sup>	California Test 202	1 per 750 tons and any remaining part at the end of the project	JMF ± Tolerance <sup>b</sup>	JMF ± Tolerance <sup>b</sup>	JMF ± Tolerance <sup>b</sup>	JMF ± Tolerance <sup>b</sup>
Sand equivalent (min) <sup>c</sup>	California Test 217		47	42	47	--
Asphalt binder content (%)	California Test 379 or 382		JMF±0.40	JMF±0.40	JMF ± 0.40	JMF ± 0.40
HMA moisture content (% max)	California Test 226 or 370	1 per 2,500 tons but not less than 1 per paving day	1.0	1.0	1.0	1.0
Field compaction (% max. theoretical density) <sup>d,e</sup>	QC plan	2 per business day (min.)	91–97	91–97	91–97	--
Stabilometer value (min) <sup>c</sup> No. 4 and 3/8" gradings 1/2" and 3/4" gradings	California Test 366	1 per 4,000 tons or 2 per 5 business days, whichever is greater	30	30	--	--
			37	35	23	--
Air void content (%) <sup>c, f</sup>	California Test 367		4 ± 2	4 ± 2	TV ± 2	--
Aggregate moisture content at continuous mixing plants and RAP moisture content at continuous mixing plants and batch mixing plants <sup>g</sup>	California Test 226 or 370	2 per day during production	--	--	--	--
Percent of crushed particles coarse aggregate (% min) One fractured face Two fractured faces Fine aggregate (% min) (Passing no. 4 sieve and retained on no. 8 sieve.) One fractured face	California Test 205	As designated in the QC plan. At least once per project	90	25	--	90
			75	--	90	75
			70	20	70	90
Los Angeles Rattler (% max) Loss at 100 rev.	California Test 211		12	--	12	12

Loss at 500 rev.			45	50	40	40
Flat and elongated particles (% max by weight @ 5:1)	California Test 235		Report only	Report only	Report only	Report only
Fine aggregate angularity (% min) <sup>h</sup>	California Test 234		45	45	45	--
Voids filled with asphalt (%) <sup>i</sup> No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367		65.0–75.0 65.0–75.0 65.0–75.0 65.0–75.0	65.0–75.0 65.0–75.0 65.0–75.0 65.0–75.0	Report only	--
Voids in mineral aggregate (% min) <sup>i</sup> No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367		17.0 15.0 14.0 13.0	17.0 15.0 14.0 13.0	-- -- 18.0–23.0 18.0–23.0	--
Dust proportion <sup>l</sup> No. 4 and 3/8" gradings 1/2" and 3/4" gradings	California Test 367		0.6-1.2 0.6–1.2	0.6-1.2 0.6–1.2	Report only	--
Hamburg wheel track (minimum number of passes at 0.5 inch average rut depth) <sup>j</sup> PG-58 PG-64 PG-70 PG-76 or higher	AASHTO T 324 (Modified)	1 per 10,000 tons or 1 per project whichever is more	10,000 15,000 20,000 25,000	10,000 15,000 20,000 25,000	--	--
Hamburg wheel track (inflection point minimum number of passes) <sup>j</sup> PG-58 PG-64 PG-70 PG-76 or higher	AASHTO T 324 (Modified)	1 per 10,000 tons or 1 per project whichever is more	10,000 10,000 12,500 15000	10,000 10,000 12,500 15000	--	--
Moisture susceptibility (minimum dry strength, psi) <sup>j</sup>	California Test 371	For RAP ≥15% 1 per 10,000 tons or 1 per project whichever is greater	120	120	--	--
Moisture susceptibility (tensile strength ratio, %) <sup>j</sup>	California Test 371	For RAP ≥15% 1 per 10,000 tons or 1	70	70	--	--

		per project whichever is greater				
Smoothness	Section 39-1.12	--	12-foot straight- edge, must grind, and PI <sub>0</sub>	12-foot straight- edge, must grind, and PI <sub>0</sub>	12-foot straight- edge, must grind, and PI <sub>0</sub>	12-foot straight- edge, must grind, and PI <sub>0</sub>
Asphalt rubber binder viscosity @ 375 °F, centipoises	Section 39-1.02D	Section 39-1.04C	--	--	1,500– 4,000	1,500– 4,000
Asphalt modifier	Section 39-1.02D	Section 39-1.04C	--	--	Section 39-1.02D	Section 39-1.02D
CRM	Section 39-1.02D	Section 39-1.04C	--	--	Section 39-1.02D	Section 39-1.02D

<sup>a</sup> Determine combined aggregate gradation containing RAP under California Test 367.

<sup>b</sup> The tolerances must comply with the allowable tolerances in section 39-1.02E.

<sup>c</sup> Report the average of 3 tests from a single split sample.

<sup>d</sup> Determine field compaction for any of the following conditions:

1. 1/2-inch, 3/8-inch, or no. 4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot.
2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot.

<sup>e</sup> To determine field compaction use:

1. In-place density measurements using the method specified in your QC plan.
2. California Test 309 to determine the maximum theoretical density at the frequency specified in California Test 375, Part 5C.

<sup>f</sup> Determine the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

<sup>g</sup> For adjusting the plant controller at the HMA plant.

<sup>h</sup> The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.

<sup>i</sup> Report only.

<sup>j</sup> Applies to RAP substitution rate greater than 15 percent.

**Replace the 1st paragraph of section 39-2.03A with:**

02-22-13

The Department samples for acceptance testing and tests for the quality characteristics shown in the following table:

**HMA Acceptance—Standard Construction Process**

Quality characteristic				Test method	HMA type			
					A	B	RHMA-G	OGFC
Aggregate gradation <sup>a</sup>				California Test 202	JMF ± tolerance <sup>c</sup>	JMF ± tolerance <sup>c</sup>	JMF ± tolerance <sup>c</sup>	JMF ± tolerance <sup>c</sup>
Sieve	3/4"	1/2"	3/8"					
1/2"	X <sup>b</sup>							
3/8"		X						
No. 4			X					
No. 8	X	X	X					
No. 200	X	X	X					
Sand equivalent (min) <sup>d</sup>				California Test 217	47	42	47	--
Asphalt binder content (%)				California Test 379 or 382	JMF±0.40	JMF±0.40	JMF ± 0.40	JMF ± 0.40
HMA moisture content (% max)				California Test 226 or 370	1.0	1.0	1.0	1.0
Field compaction (% max. theoretical density) <sup>e, f</sup>				California Test 375	91–97	91–97	91–97	--
Stabilometer value (min) <sup>d</sup> No. 4 and 3/8" gradings 1/2" and 3/4" gradings				California Test 366	30 37	30 35	-- 23	-- --
Air void content (%) <sup>d, g</sup>				California Test 367	4 ± 2	4 ± 2	TV ± 2	--
Percent of crushed particles Coarse aggregate (% min) One fractured face Two fractured faces Fine aggregate (% min) (Passing no. 4 sieve and retained on no. 8 sieve.) One fractured face				California Test 205	90 75  70	25 -- 20	-- 90 70	90 75 90
Los Angeles Rattler (% max) Loss at 100 rev. Loss at 500 rev.				California Test 211	12 45	-- 50	12 40	12 40
Fine aggregate angularity (% min) <sup>h</sup>				California Test 234	45	45	45	--
Flat and elongated particles (% max by weight @ 5:1)				California Test 235	Report only	Report only	Report only	Report only
Voids filled with asphalt (%) <sup>i</sup> No. 4 grading 3/8" grading 1/2" grading 3/4" grading				California Test 367	65.0–75.0 65.0–75.0 65.0–75.0 65.0–75.0	65.0–75.0 65.0–75.0 65.0–75.0 65.0–75.0	Report only	--
Voids in mineral aggregate (% min) <sup>i</sup> No. 4 grading 3/8" grading 1/2" grading 3/4" grading				California Test 367	17.0 15.0 14.0 13.0	17.0 15.0 14.0 13.0	-- -- 18.0–23.0 18.0–23.0	--
Dust proportion <sup>i</sup>				California			Report only	--

No. 4 and 3/8" gradings 1/2" and 3/4" gradings	Test 367	0.6-1.2 0.6-1.2	0.6-1.2 0.6-1.2		
Hamburg wheel track (minimum number of passes at 0.5 inch average rut depth) <sup>j</sup> PG-58 PG-64 PG-70 PG-76 or higher	AASHTO T 324 (Modified)	10,000 15,000 20,000 25,000	10,000 15,000 20,000 25,000	--	--
Hamburg wheel track (inflection point minimum number of passes) <sup>j</sup> PG-58 PG-64 PG-70 PG-76 or higher	AASHTO T 324 (Modified)	10,000 10,000 12,500 15000	10,000 10,000 12,500 15000	--	--
Moisture susceptibility (minimum dry strength, psi) <sup>j</sup>	California Test 371	120	120	--	--
Moisture susceptibility (tensile strength ratio, %) <sup>j</sup>	California Test 371	70	70	--	--
Smoothness	Section 39-1.12	12-foot straight- edge, must grind, and PI <sub>0</sub>	12-foot straight- edge, must grind, and PI <sub>0</sub>	12-foot straight- edge, must grind, and PI <sub>0</sub>	12-foot straight- edge and must grind
Asphalt binder	Various	Section 92	Section 92	Section 92	Section 92
Asphalt rubber binder	Various	--	--	Section 92- 1.01D(2) and section 39-1.02D	Section 92-1.01D(2) and section 39-1.02D
Asphalt modifier	Various	--	--	Section 39-1.02D	Section 39-1.02D
CRM	Various	--	--	Section 39-1.02D	Section 39-1.02D

<sup>a</sup> The Engineer determines combined aggregate gradations containing RAP under California Test 367.

<sup>b</sup> "X" denotes the sieves the Engineer tests for the specified aggregate gradation.

<sup>c</sup> The tolerances must comply with the allowable tolerances in section 39-1.02E.

<sup>d</sup> The Engineer reports the average of 3 tests from a single split sample.

<sup>e</sup> The Engineer determines field compaction for any of the following conditions:

1. 1/2-inch, 3/8-inch, or no. 4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot.
2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot.

<sup>f</sup> To determine field compaction, the Engineer uses:

1. California Test 308, Method A, to determine in-place density of each density core.
2. California Test 309 to determine the maximum theoretical density at the frequency specified in California Test 375, Part 5C.

<sup>g</sup> The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

<sup>h</sup> The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.

<sup>i</sup> Report only.

<sup>j</sup> Applies to RAP substitution rate greater than 15 percent.

**Replace the 5th paragraph of section 39-2.03A with:**

01-20-12

The Engineer determines the percent of maximum theoretical density from density cores taken from the final layer measured the full depth of the total paved HMA thickness if any of the following applies:

1. 1/2-inch, 3/8-inch, or no. 4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot and any layer is less than 0.15 foot.
2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.2 foot and any layer is less than 0.20 foot.

**Replace the 1st paragraph of section 39-3.02A with:**

02-22-13

The Department samples for acceptance testing and tests for the quality characteristics shown in the following table:

**HMA Acceptance—Method Construction Process**

Quality characteristic	Test method	HMA type			
		A	B	RHMA-G	OGFC
Aggregate gradation <sup>a</sup>	California Test 202	JMF ± tolerance <sup>b</sup>	JMF ± tolerance <sup>b</sup>	JMF ± tolerance <sup>b</sup>	JMF ± tolerance <sup>b</sup>
Sand equivalent (min) <sup>c</sup>	California Test 217	47	42	47	--
Asphalt binder content (%)	California Test 379 or 382	JMF±0.40	JMF±0.40	JMF ± 0.40	JMF ± 0.40
HMA moisture content (% max)	California Test 226 or 370	1.0	1.0	1.0	1.0
Stabilometer value (min) <sup>c</sup> No. 4 and 3/8" gradings 1/2" and 3/4" gradings	California Test 366	30 37	30 35	-- 23	-- --
Percent of crushed particles Coarse aggregate (% min) One fractured face Two fractured faces Fine aggregate (% min) (Passing no. 4 sieve and retained on no. 8 sieve.) One fractured face	California Test 205	90 75  70	25 --  20	-- 90  70	90 75  90
Los Angeles Rattler (% max) Loss at 100 rev. Loss at 500 rev.	California Test 211	12 45	-- 50	12 40	12 40
Air void content (%) <sup>c, d</sup>	California Test 367	4 ± 2	4 ± 2	TV ± 2	--
Fine aggregate angularity (% min) <sup>e</sup>	California Test 234	45	45	45	--
Flat and elongated particles (% max by weight @ 5:1)	California Test 235	Report only	Report only	Report only	Report only
Voids filled with asphalt (%) <sup>f</sup> No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367	65.0–75.0 65.0–75.0 65.0–75.0 65.0–75.0	65.0–75.0 65.0–75.0 65.0–75.0 65.0–75.0	Report only	--
Voids in mineral aggregate (% min) <sup>f</sup> No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367	17.0 15.0 14.0 13.0	17.0 15.0 14.0 13.0	-- -- 18.0–23.0 18.0–23.0	--
Dust proportion <sup>1</sup> No. 4 and 3/8" gradings 1/2" and 3/4" gradings	California Test 367	0.6–1.2 0.6–1.2	0.6–1.2 0.6–1.2	Report only	--
Hamburg wheel track (minimum number of passes at 0.5 inch average rut depth) <sup>g</sup> PG-58 PG-64	AASHTO T 324 (Modified)	10,000 15,000	10,000 15,000	--	--



PG-70 PG-76 or higher		20,000 25,000	20,000 25,000		
Hamburg wheel track (inflection point minimum number of passes) <sup>g</sup> PG-58 PG-64 PG-70 PG-76 or higher	AASHTO T 324 (Modified)	10,000 10,000 12,500 15000	10,000 10,000 12,500 15000	--	--
Moisture susceptibility (minimum dry strength, psi) <sup>g</sup>	California Test 371	120	120	--	--
Moisture susceptibility (tensile strength ration, %) <sup>g</sup>	California Test 371	70	70	--	--
Smoothness	Section 39-1.12	12-foot straight- edge and must-grind	12-foot straight- edge and must-grind	12-foot straight- edge and must-grind	12-foot straight- edge and must-grind
Asphalt binder	Various	Section 92	Section 92	Section 92	Section 92
Asphalt rubber binder	Various	--	--	Section 92- 1.01D(2) and section 39-1.02D	Section 92- 1.01D(2) and section 39-1.02D
Asphalt modifier	Various	--	--	Section 39-1.02D	Section 39-1.02D
CRM	Various	--	--	Section 39-1.02D	Section 39-1.02D

<sup>a</sup> The Engineer determines combined aggregate gradations containing RAP under California Test 367.

<sup>b</sup> The tolerances must comply with the allowable tolerances in section 39-1.02E.

<sup>c</sup> The Engineer reports the average of 3 tests from a single split sample.

<sup>d</sup> The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

<sup>e</sup> The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.

<sup>f</sup> Report only.

<sup>g</sup> Applies to RAP substitution rate greater than 15 percent.

**Replace "280 degrees F" in item 2 in the list in the 6th paragraph of section 39-3.04 with:**

285 degrees F

01-20-12

**Replace "5,000" in the 5th paragraph of section 39-4.02C with:**

10,000

02-22-13

**Replace the 7th paragraph of section 39-4.02C with:**

Except for RAP substitution rate of greater than 15 percent, the Department does not use results from California Test 371 to determine specification compliance.

02-22-13

**Replace the 8th paragraph of section 39-4.02C with:**

02-22-13

Comply with the values for the HMA quality characteristics and minimum random sampling and testing for quality control shown in the following table:

**Minimum Quality Control—QC/QA Construction Process**

Quality characteristic	Test method	Minimum sampling and testing frequency	HMA Type			Location of sampling	Maximum report-ing time allow-ance
			A	B	RHMA-G		
Aggregate gradation <sup>a</sup>	California Test 202	1 per 750 tons	JMF ± tolerance <sup>b</sup>	JMF ± tolerance <sup>b</sup>	JMF ± tolerance <sup>b</sup>	California Test 125	24 hours
Asphalt binder content (%)	California Test 379 or 382		JMF±0.40	JMF±0.40	JMF ±0.40	Loose mix behind paver See California Test 125	
Field compaction (% max. theoretical density) <sup>c,d</sup>	QC plan		92–96	92–96	91–96	QC plan	
Aggregate moisture content at continuous mixing plants and RAP moisture content at continuous mixing plants and batch mixing plants <sup>e</sup>	California Test 226 or 370	2 per day during production	--	--	--	Stock-piles or cold feed belts	--
Sand equivalent (min) <sup>f</sup>	California Test 217	1 per 750 tons	47	42	47	California Test 125	24 hours
HMA moisture content (% max)	California Test 226 or 370	1 per 2,500 tons but not less than 1 per paving day	1.0	1.0	1.0	Loose Mix Behind Paver See California Test 125	24 hours
Stabilometer value (min) <sup>f</sup>	California Test 366	1 per 4,000 tons or 2 per 5 business days, whichever is greater	30	30	--		48 hours
No. 4 and 3/8" gradings 1/2" and 3/4" gradings			37	35	23		
Air void content (%) <sup>f,g</sup>	California Test 367		4 ± 2	4 ± 2	TV ± 2		

Percent of crushed particles coarse aggregate (% min.): One fractured face Two fractured faces	California Test 205	As designated in QC plan.  At least once per project.	90	25	--	California Test 125	48 hours
Fine aggregate (% min) (Passing no. 4 sieve and retained on no. 8 sieve): One fractured face			75	--	90		
			70	20	70		
Los Angeles Rattler (% max): Loss at 100 rev. Loss at 500 rev.	California Test 211		12	--	12	California Test 125	
			45	50	40		
Fine aggregate angularity (% min) <sup>n</sup>	California Test 234		45	45	45	California Test 125	
Flat and elongated particle (% max by weight @ 5:1)	California Test 235		Report only	Report only	Report only	California Test 125	
Voids filled with asphalt (%) <sup>i</sup>  No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367		65.0–75.0 65.0–75.0 65.0–75.0 65.0–75.0	65.0–75.0 65.0–75.0 65.0–75.0 65.0–75.0	Report only		
Voids in mineral aggregate (% min.) <sup>i</sup>  No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367		17.0 15.0 14.0 13.0	17.0 15.0 14.0 13.0	-- -- 18.0–23.0 18.0–23.0		

Dust proportion <sup>i</sup>  No. 4 and 3/8" gradings 1/2" and 3/4" gradings	California Test 367		0.6–1.2 0.6–1.2	0.6–1.2 0.6–1.2	Report only		
Hamburg wheel track (minimum number of passes at 0.5 inch average rut depth) <sup>i</sup> PG-58 PG-64 PG-70 PG-76 or higher	AASHTO T 324 (Modified)	1 per 10,000 tons or 1 per project whichever is greater	10,000 15,000 20,000 25,000	10,000 15,000 20,000 25,000	--	--	
Hamburg wheel track (inflection point minimum number of passes) <sup>i</sup> PG-58 PG-64 PG-70 PG-76 or higher	AASHTO T 324 (Modified)	1 per 10,000 tons or 1 per project whichever is greater	10,000 10,000 12,500 15000	10,000 10,000 12,500 15000	--	--	
Moisture susceptibility (minimum dry strength, psi) <sup>j</sup>	California Test 371	1 per 10,000 tons or 1 per project whichever is greater	120	120	--	--	
Moisture susceptibility (tensile strength ratio, %) <sup>j</sup>	California Test 371	1 per 10,000 tons or 1 per project whichever is greater	70	70	70	--	
Smoothness	Section 39-1.12	--	12-foot straight-edge, must-grind, and Pl <sub>0</sub>	12-foot straight-edge, must-grind, and Pl <sub>0</sub>	12-foot straight-edge, must-grind, and Pl <sub>0</sub>	--	
Asphalt rubber binder viscosity @ 375 °F, centipoises	Section 39-1.02D	--	--	--	1,500–4,000	Section 39-1.02D	24 hours
CRM	Section 39-1.02D	--	--	--	Section 39-1.02D	Section 39-1.02D	48 hours

- <sup>a</sup> Determine combined aggregate gradation containing RAP under California Test 367.
- <sup>b</sup> The tolerances must comply with the allowable tolerances in section 39-1.02E.
- <sup>c</sup> Determines field compaction for any of the following conditions:
  - 1. 1/2-inch, 3/8-inch, or no. 4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot.
  - 2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot.
- <sup>d</sup> To determine field compaction use:
  - 1. In-place density measurements using the method specified in your QC plan.
  - 2. California Test 309 to determine the maximum theoretical density at the frequency specified in California Test 375, Part 5C.
- <sup>e</sup> For adjusting the plant controller at the HMA plant.
- <sup>f</sup> Report the average of 3 tests from a single split sample.
- <sup>g</sup> Determine the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.
- <sup>h</sup> The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.
- <sup>i</sup> Report only.
- <sup>j</sup> Applies to RAP substitution rate greater than 15 percent.

**Replace the 1st sentence in the 1st paragraph of section 39-4.03B(2) with:**

01-20-12

For aggregate gradation and asphalt binder content, the minimum ratio of verification testing frequency to quality control testing frequency is 1:5.

**Replace the 2nd "and" in the 7th paragraph of section 39-4.03B(2) with:**

01-20-12

or

**Replace the 1st paragraph of section 39-4.04A with:**

02-22-13

The Engineer samples for acceptance testing and tests for the following quality characteristics:

**HMA Acceptance—QC/QA Construction Process**

Index (i)	Quality characteristic				Weight -ing factor (w)	Test method	HMA type			
							A	B	RHMA-G	
		Aggregate gradation <sup>a</sup>				California Test 202	JMF ± Tolerance <sup>c</sup>			
	Sieve	3/4"	1/2"	3/8"						
1	1/2"	X <sup>b</sup>	--	--						0.05
1	3/8"	--	X	--						0.05
1	No. 4	--	--	X						0.05
2	No. 8	X	X	X						0.10
3	No. 200	X	X	X						0.15
4	Asphalt binder content (%)				0.30	California Test 379 or 382	JMF±0.40	JMF±0.40	JMF ± 0.40	
5	Field compaction (% max. theoretical density) <sup>d, e</sup>				0.40	California Test 375	92–96	92–96	91–96	
	Sand equivalent (min) <sup>f</sup>					California Test 217	47	42	47	
	Stabilometer value (min) <sup>f</sup> No. 4 and 3/8" gradings 1/2" and 3/4" gradings					California Test 366	30 37	30 35	-- 23	
	Air void content (%) <sup>f, g</sup>					California Test 367	4 ± 2	4 ± 2	TV ± 2	
	Percent of crushed particles coarse aggregate (% min) One fractured face Two fractured faces Fine aggregate (% min) (Passing no. 4 sieve and retained on No. 8 sieve.) One fractured face					California Test 205	90 75	25 --	-- 90	
	HMA moisture content (%, max)					California Test 226 or 370	1.0	1.0	1.0	
	Los Angeles Rattler (% max) Loss at 100 rev. Loss at 500 rev.					California Test 211	12 45	-- 50	12 40	
	Fine aggregate angularity (% min) <sup>h</sup>					California Test 234	45	45	45	
	Flat and elongated particle (% max by weight @ 5:1)					California Test 235	Report only	Report only	Report only	
	Voids in mineral aggregate (% min) <sup>i</sup> No. 4 grading 3/8" grading 1/2" grading 3/4" grading					California Test 367	17.0 15.0 14.0 13.0	17.0 15.0 14.0 13.0	-- -- 18.0–23.0 18.0–23.0	

	Voids filled with asphalt (%) <sup>i</sup> No. 4 grading 3/8" grading 1/2" grading 3/4" grading		California Test 367	65.0–75.0 65.0–75.0 65.0–75.0 65.0–75.0	65.0–75.0 65.0–75.0 65.0–75.0 65.0–75.0	Report only
	Dust proportion <sup>i</sup> No. 4 and 3/8" gradings 1/2" and 3/4" gradings		California Test 367	0.6–1.2 0.6–1.2	0.6–1.2 0.6–1.2	Report only
	Hamburg Wheel Tracker (minimum number of passes at 0.5 inch average rut depth) <sup>i</sup> PG-58 PG-64 PG-70 PG-76 or higher		AASHTO T 324 (Modified)	10,000 15,000 20,000 25,000	10,000 15,000 20,000 25,000	--
	Hamburg Wheel Tracker (inflection point minimum number of passes) <sup>i</sup> PG-58 PG-64 PG-70 PG-76 or higher		AASHTO T 324 (Modified)	10,000 15,000 20,000 25,000	10,000 15,000 20,000 25,000	--
	Moisture susceptibility (minimum dry strength, psi) <sup>i</sup>		California Test 371	120	120	--
	Moisture susceptibility (tensile strength ratio %) <sup>i</sup>		California Test 371	70	70	70
	Smoothness		Section 39-1.12	12-foot straight- edge, must grind, and PI <sub>0</sub>	12-foot straight- edge, must grind, and PI <sub>0</sub>	12-foot straight- edge, must grind, and PI <sub>0</sub>
	Asphalt binder		Various	Section 92	Section 92	Section 92
	Asphalt rubber binder		Various	--	--	Section 92-1.01D(2) and section 39-1.02D
	Asphalt modifier		Various	--	--	Section 39-1.02D
	CRM		Various	--	--	Section 39-1.02D



- <sup>a</sup> The Engineer determines combined aggregate gradations containing RAP under California Test 367.
- <sup>b</sup> "X" denotes the sieves the Engineer tests for the specified aggregate gradation.
- <sup>c</sup> The tolerances must comply with the allowable tolerances in section 39-1.02E.
- <sup>d</sup> The Engineer determines field compaction for any of the following conditions:
  1. 1/2-inch, 3/8-inch, or no. 4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot and less than 0.20 foot.
  2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot.
- <sup>e</sup> To determine field compaction, the Engineer uses:
  1. California Test 308, Method A, to determine in-place density of each density core.
  2. California Test 309 to determine the maximum theoretical density at the frequency specified in California Test 375, Part 5C.
- <sup>f</sup> The Engineer reports the average of 3 tests from a single split sample.
- <sup>g</sup> The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.
- <sup>h</sup> The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.
- <sup>i</sup> Report only.
- <sup>j</sup> Applies to RAP substitution rate greater than 15 percent.

**Replace the 3rd paragraph of section 39-4.04A with:**

01-20-12

The Department determines the percent of maximum theoretical density from density cores taken from the final layer measured the full depth of the total paved HMA thickness if any of the following applies:

1. 1/2-inch, 3/8-inch, or no. 4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot and any layer is less than 0.15 foot.
2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 and any layer is less than 0.20 foot.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

## **40 CONCRETE PAVEMENT**

01-20-12

**Replace section 40-1.01C(4) with:**

01-20-12

**40-1.01C(4) Authorized Laboratory**

Submit for authorization the name of the laboratory you propose to use for testing the drilled core specimens for air content.

**Replace the paragraph in section 40-1.01C(8) with:**

01-20-12

Submit a plan for protecting concrete pavement during the initial 72 hours after paving when the forecasted minimum ambient temperature is below 40 degrees F.

01-20-12

**Delete "determined under California Test 559" in section 40-1.01C(9).**

**Replace the 2nd and 3rd paragraphs in section 40-1.01D(4) with:**

01-20-12

The QC plan must include details of corrective action to be taken if any process is out of control. As a minimum, a process is out of control if any of the following occurs:

1. For fine and coarse aggregate gradation, 2 consecutive running averages of 4 tests are outside the specification limits
2. For individual penetration or air content measurements:
  - 2.1. One point falls outside the suspension limit line
  - 2.2. Two points in a row fall outside the action limit line

Stop production and take corrective action for out of control processes or the Engineer rejects subsequent material.

**Replace the 1st paragraph in section 40-1.01D(5) with:**

01-20-12

Determine the minimum cementitious materials content. Use your value for minimum cementitious material content for *MC* in equation 1 and equation 2 of section 90-1.02B(3).

**Replace the 1st sentence of the 3rd paragraph of section 40-1.01D(9) with:**

01-20-12

Use a California profilograph to determine the concrete pavement profile.

**Replace the title of the table in section 40-1.01D(13)(a) with:**

01-20-12

**Concrete Pavement Acceptance Testing**

**Replace the 2nd and 3rd paragraphs in section 40-1.01D(13)(a) with:**

01-20-12

Pavement smoothness may be accepted based on the Department's testing. A single test represents no more than 0.1 mile.

Acceptance of modulus of rupture, thickness, dowel bar and tie bar placement, coefficient of friction, smoothness, and air content, does not constitute final concrete pavement acceptance.

01-20-12

**Delete item 4 in the list in the 2nd paragraph in section 40-1.01D(13)(c)(2).**

**Replace items 1 and 2 in the list in the 2nd paragraph in 40-1.01D(13)(d) with:**

01-20-12

1. For tangents and horizontal curves having a centerline radius of curvature 2,000 feet or more, the  $PI_0$  must be at most 2-1/2 inches per 0.1-mile section.
2. For horizontal curves having a centerline radius of curvature from 1,000 to 2,000 feet including concrete pavement within the superelevation transitions of those curves, the  $PI_0$  must be at most 5 inches per 0.1-mile section.

**Replace the 1st and 2nd variables in the equation in section 40-1.01D(13)(f) with:**

01-20-12

$n_c$  = Number of your quality control tests (minimum of 6 required)  
 $n_v$  = Number of verification tests (minimum of 2 required)

**Replace "Your approved third party independent testing laboratory" in the 4th paragraph of section 40-1.01D(13)(f) with:**

01-20-12

The authorized laboratory

**Replace item 2 in the list in the 2nd paragraph of section 40-1.01D(13)(g):**

01-20-12

2. One test for every 4,000 square yards of concrete pavement with tie bars or remaining fraction of that area. Each tie bar test consists of 2 cores with 1 on each tie-bar-end to expose both ends and allow measurement.

**Replace section 40-1.01D(13)(h) with:**

01-20-12

**40-1.01D(13)(h) Bar Reinforcement**

Bar reinforcement is accepted based on inspection before concrete placement.

**Replace the paragraph in section 40-1.02B(2) with:**

01-20-12

PCC for concrete pavement must comply with section 90-1 except as otherwise specified.

**Replace the paragraphs in section 40-1.02D with:**

01-20-12

Bar reinforcement must be deformed bars.

If the project is not shown to be in high desert or any mountain climate region, bar reinforcement must comply with section 52.

If the project is shown to be in high desert or any mountain climate regions, bar reinforcement must be one of the following:

1. Epoxy-coated bar reinforcement under section 52-2.03B except bars must comply with either ASTM A 706/A 706M; ASTM A 996/A 996M; or ASTM A 615/A 615M, Grade 40 or 60. Bars must be handled under ASTM D 3963/D 3963M and section 52-2.02C.
2. Low carbon, chromium steel bar complying with ASTM A 1035/A 1035M

**Replace the paragraphs in section 40-1.02E with:**

01-20-12

Tie bars must be deformed bars.

If the project is not shown to be in high desert or any mountain climate region, tie bars must be one of the following:

1. Epoxy-coated bar reinforcement. Bars must comply with either section 52-2.02B or 52-2.03B except bars must comply with either ASTM A 706/A 706M; ASTM A 996/A 996M; or ASTM A 615/A 615M, Grade 40 or 60.
2. Stainless-steel bars. Bars must be descaled, pickled, polished, and solid stainless-steel bars under ASTM A 955/A 955M, Grade 60, UNS Designation S31603 or S31803.
3. Low carbon, chromium-steel bars under ASTM A 1035/A 1035M.

If the project is shown to be in high desert or any mountain climate region, tie bars must be one of the following:

1. Epoxy-coated bar reinforcement. Bars must comply with section 52-2.03B except bars must comply with either ASTM A 706/A 706M; ASTM A 996/A 996M; or ASTM A 615/A 615M, Grade 40 or 60.
2. Stainless-steel bars. Bars must be descaled, pickled, polished, and solid stainless-steel bars under ASTM A 955/A 955M, Grade 60, UNS Designation S31603 or S31803.

Fabricate, sample, and handle epoxy-coated tie bars under ASTM D 3963/D 3963M, section 52-2.02C, or section 52-2.03C.

Do not bend tie bars.

**Replace the 1st, 2nd, and 3rd paragraphs in section 40-1.02F with:**

01-20-12

Dowel bars must be plain bars. Fabricate, sample, and handle epoxy-coated dowel bars under ASTM D 3963/D 3963M and section 52-2.03C except each sample must be 18 inches long.

If the project is not shown to be in high desert or any mountain climate region, dowel bars must be one of the following:

1. Epoxy-coated bars. Bars must comply with ASTM A 615/A 615M, Grade 40 or 60. Epoxy coating must comply with either section 52-2.02B or 52-2.03B.
2. Stainless-steel bars. Bars must be descaled, pickled, polished, and solid stainless-steel bars under ASTM A 955/A 955M, Grade 60, UNS Designation S31603 or S31803.
3. Low carbon, chromium-steel bars under ASTM A 1035/A 1035M.

If the project is shown to be in high desert or any mountain climate region, dowel bars must be one of the following:

1. Epoxy-coated bars. Bars must comply with ASTM A 615/A 615M, Grade 40 or 60. Epoxy coating must comply with section 52-2.03B.
2. Stainless-steel bars. Bars must be descaled, pickled, polished, and solid stainless-steel bars under ASTM A 955/A 955M, Grade 60, UNS Designation S31603 or S31803.

**Replace the paragraphs in section 40-1.02G with:**

01-20-12

For dowel and tie bar baskets, wire must comply with ASTM A 82/A 82M and be welded under ASTM A 185/A 185M, Section 7.4. The minimum wire-size no. is W10. Use either U-frame or A-frame shaped assemblies.

If the project is not shown to be in high desert or any mountain climate region. Baskets may be epoxy-coated, and the epoxy coating must comply with either section 52-2.02B or 52-2.03B.

If the project is shown to be in high desert or any mountain climate region, wire for dowel bar and tie bar baskets must be one of the following:

1. Epoxy-coated wire complying with section 52-2.03B
2. Stainless-steel wire. Wire must be descaled, pickled, and polished solid stainless-steel. Wire must comply with (1) the chemical requirements in ASTM A 276/A 276M, UNS Designation S31603 or S31803 and (2) the tension requirements in ASTM A 1022/ A 1022M.

Handle epoxy-coated tie bar and dowel bar baskets under ASTM D 3963/D 3963M and either section 52-2.02B or 52-2.03B.

Fasteners must be driven fasteners under ASTM F 1667. Fasteners on lean concrete base or HMA must have a minimum shank diameter of 3/16 inch and a minimum shank length of 2-1/2 inches. For asphalt treated permeable base or cement treated permeable base, the shank diameter must be at least 3/16 inch and the shank length must be at least 5 inches.

Fasteners, clips, and washers must have a minimum 0.2-mil thick zinc coating applied by either electroplating or galvanizing.

**Replace the 1st paragraph in section 40-1.02H with:**

01-20-12

Chemical adhesive for drilling and bonding dowels and tie bars must be on the Authorized Material List. The Authorized Material List indicates the appropriate chemical adhesive system for the concrete temperature and installation conditions.

**Replace section 40-1.02I(2) with:**

01-20-12

**40-1.02I(2) Silicone Joint Sealant**

Silicone joint sealant must be on the Authorized Material List.

**Replace the last sentence in section 40-1.02I(4) with:**

01-20-12

Show evidence that the seals are compressed from 30 to 50 percent for the joint width at time of installation.

**Replace the paragraph in section 40-1.02L with:**

01-20-12

Water for core drilling may be obtained from a potable water source, or submit proof that it does not contain:

1. More than 1,000 parts per million of chlorides as Cl
2. More than 1,300 parts per million of sulfates as  $SO_4$
3. Impurities that cause pavement discoloration or surface etching

**Replace the paragraph in section 40-1.03B with:**

01-20-12

Before placing concrete pavement, develop enough water supply for the work under section 17.

**Replace the last paragraph in section 40-1.03D(1) with:**

01-20-12

Removal of grinding residue must comply with section 42-1.03B.

**Replace the 1st and 2nd paragraphs in section 40-1.03E(6)(c) with:**

01-20-12

Install preformed compressions seals in isolation joints if specified in the special provisions.

Install longitudinal seals before transverse seals. Longitudinal seals must be continuous except splicing is allowed at intersections with transverse seals. Transverse seals must be continuous for the entire transverse length of concrete pavement except splices are allowed for widenings and staged construction. With a sharp instrument, cut across the longitudinal seal at the intersection with transverse construction joints. If the longitudinal seal does not relax enough to properly install the transverse seal, trim the longitudinal seal to form a tight seal between the 2 joints.

If splicing is authorized, splicing must comply with the manufacturer's written instructions.

**Replace the 12th and 13th paragraphs in section 40-1.03G with:**

01-20-12

Construct additional test strips if you:

1. Propose different paving equipment including:
  - 1.1. Paver
  - 1.2. Dowel bar inserter
  - 1.3. Tie bar inserter
  - 1.4. Tining
  - 1.5. Curing equipment
2. Change concrete mix proportions

You may request authorization to eliminate the test strip if you use paving equipment and personnel from a Department project (1) for the same type of pavement and (2) completed within the past 12 months. Submit supporting documents and previous project information with your request.

**Replace the 1st paragraph in section 40-1.03I with:**

01-20-12

Place tie bars in compliance with the tolerances shown in the following table:

Tie Bar Tolerance	
Dimension	Tolerance
Horizontal and vertical skew	10 degrees maximum
Longitudinal translation	± 2 inch maximum
Horizontal offset (embedment)	± 2 inch maximum
Vertical depth	1. Not less than 1/2 inch below the saw cut depth of joints 2. When measured at any point along the bar, not less than 2 inches clear of the pavement's surface and bottom

**Replace item 4 in the list in the 2nd paragraph in section 40-1.03I with:**

01-20-12

4. Use tie bar baskets. Anchor baskets at least 200 feet in advance of pavement placement activity. If you request a waiver, describe the construction limitations or restricted access preventing the advanced anchoring. After the baskets are anchored and before paving, demonstrate the tie bars do not move from their specified depth and alignment during paving. Use fasteners to anchor tie bar baskets.

**Replace "The maximum distance below the depth shown must be 0.05 foot." in the table in section 40-1.03J with:**

01-20-12

The maximum distance below the depth shown must be 5/8 inch.

**Replace sections 40-1.03L and 40-1.03M with:**

01-20-12

**40-1.03L Finishing**

**40-1.03L(1) General**

Reserved

#### **40-1.03L(2) Preliminary Finishing**

##### **40-1.03L(2)(a) General**

Preliminary finishing must produce a smooth and true-to-grade finish. After preliminary finishing, mark each day's paving with a stamp. The stamp must be authorized before paving starts. The stamp must be approximately 1 by 2 feet in size. The stamp must form a uniform mark from 1/8 to 1/4 inch deep. Locate the mark  $20 \pm 5$  feet from the transverse construction joint formed at each day's start of paving and  $1 \pm 0.25$  foot from the pavement's outside edge. The stamp mark must show the month, day, and year of placement and the station of the transverse construction joint. Orient the stamp mark so it can be read from the pavement's outside edge.

Do not apply more water to the pavement surface than can evaporate before float finishing and texturing are completed.

##### **40-1.03L(2)(b) Stationary Side Form Finishing**

If stationary side form construction is used, give the pavement a preliminary finish by the machine float method or the hand method.

If using the machine float method:

1. Use self-propelled machine floats.
2. Determine the number of machine floats required to perform the work at a rate equal to the pavement delivery rate. If the time from paving to machine float finishing exceeds 30 minutes, stop pavement delivery. When machine floats are in proper position, you may resume pavement delivery and paving.
3. Run machine floats on side forms or adjacent pavement lanes. If running on adjacent pavement, protect the adjacent pavement surface under section 40-1.03P. Floats must be hardwood, steel, or steel-shod wood. Floats must be equipped with devices that adjust the underside to a true flat surface.

If using the hand method, finish pavement smooth and true to grade with manually operated floats or powered finishing machines.

##### **40-1.03L(2)(c) Slip-Form Finishing**

If slip-form construction is used, the slip-form paver must give the pavement a preliminary finish. You may supplement the slip-form paver with machine floats.

Before the pavement hardens, correct pavement edge slump in excess of 0.02 foot exclusive of edge rounding.

##### **40-1.03L(3) Final Finishing**

After completing preliminary finishing, round the edges of the initial paving widths to a 0.04-foot radius. Round transverse and longitudinal construction joints to a 0.02-foot radius.

Before curing, texture the pavement. Perform initial texturing with a burlap drag or broom device that produces striations parallel to the centerline. Perform final texturing with a steel-tined device that produces grooves parallel with the centerline.

Construct longitudinal grooves with a self-propelled machine designed specifically for grooving and texturing pavement. The machine must have tracks to maintain constant speed, provide traction, and maintain accurate tracking along the pavement surface. The machine must have a single row of rectangular spring steel tines. The tines must be from 3/32 to 1/8 inch wide, on 3/4-inch centers, and must have enough length, thickness, and resilience to form grooves approximately 3/16 inch deep. The machine must have horizontal and vertical controls. The machine must apply constant down pressure on the pavement surface during texturing. The machines must not cause ravels.

Construct grooves over the entire pavement width in a single pass except do not construct grooves 3 inches from the pavement edges and longitudinal joints. Final texture must be uniform and smooth. Use a guide to properly align the grooves. Grooves must be parallel and aligned to the pavement edge across the pavement width. Grooves must be from 1/8 to 3/16 inch deep after the pavement has hardened.

For irregular areas and areas inaccessible to the grooving machine, you may hand-construct grooves under section 40-1.03L(2) using the hand method. Hand-constructed grooves must comply with the specifications for machine-constructed grooves.

Initial and final texturing must produce a coefficient of friction of at least 0.30 when tested under California Test 342. Notify the Engineer when the pavement is scheduled to be opened to traffic to allow at least 25 days for the Department to schedule testing for coefficient of friction. Notify the Engineer when the pavement is ready for testing which is the latter of:

1. Seven days after paving
2. When the pavement has attained a modulus of rupture of 550 psi

The Department tests for coefficient of friction within 7 days of receiving notification that the pavement is ready for testing.

Do not open the pavement to traffic unless the coefficient of friction is at least 0.30.

#### **40-1.03M Reserved**

#### **Replace the 4th paragraph of 40-1.03P with:**

01-20-12

Construct crossings for traffic convenience. If authorized, you may use RSC for crossings. Do not open crossings until the Department determines that the pavement's modulus of rupture is at least 550 psi under California Test 523 or California Test 524.

#### **Replace the 1st paragraph of section 40-6.01A with:**

01-20-12

Section 40-6 includes specifications for applying a high molecular weight methacrylate resin system to pavement surface cracks that do not extend the full slab depth.

#### **Replace the 4th paragraph of section 40-6.01C(2) with:**

01-20-12

If the project is in an urban area adjacent to a school or residence, the public safety plan must also include an airborne emissions monitoring plan prepared by a CIH certified in comprehensive practice by the American Board of Industrial Hygiene. Submit a copy of the CIH's certification. The CIH must monitor the emissions at a minimum of 4 points including the mixing point, the application point, and the point of nearest public contact. At work completion, submit a report by the industrial hygienist with results of the airborne emissions monitoring plan.

#### **Delete the 1st sentence of the 2nd paragraph in section 40-6.02B.**

01-20-12

#### **Replace item 4 in the list in the last paragraph in section 40-6.03A with:**

01-20-12

4. Coefficient of friction is at least 0.30 under California Test 342

#### **Replace the paragraph in section 40-6.04 with:**

01-20-12

Not Used



01-20-12

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10-19-12

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04-19-13

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04-19-13

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10-19-12

01-20-12

02-17-12

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**Add between the 2nd and 3rd paragraphs of section 47-3.02A:**

10-19-12

Reinforcement must comply with section 52.

**Delete the 1st paragraph of section 47-3.02B(2)(b).**

10-19-12

**Add between the 3rd and 4th paragraphs of section 47-5.01:**

10-19-12

Reinforcement must comply with section 52.

**Add to section 47-6.01A:**

10-19-12

The alternative earth retaining system must comply with the specifications for the type of wall being constructed.

**Replace "sets" at each occurrence in the 1st paragraph of section 47-6.01C with:**

04-19-13

copies

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## **48 TEMPORARY STRUCTURES**

04-19-13

**Replace "previously welded splice" and its definition in section 48-2.01B with:**

04-19-13

**previously welded splice:** Splice made in a falsework member in compliance with AWS D1.1 or other recognized welding standard before contract award.

**Delete "field" in the 1st sentence of the 5th paragraph of section 48-2.01C(1).**

04-19-13

**Replace item 1 in the list in the 6th paragraph of section 48-2.01C(1) with:**

04-19-13

1. Itemize the testing, inspection methods, and acceptance criteria used

**Replace the 7th paragraph of section 48-2.01C(2) with:**

09-16-11

If you submit multiple submittals at the same time or additional submittals before review of a previous submittal is complete:

1. You must designate a review sequence for submittals
2. Review time for any submittal is the review time specified plus 15 days for each submittal of higher priority still under review

**Replace the 1st paragraph of section 48-2.01D(2) with:**

04-19-13

Welding must comply with AWS D1.1 or other recognized welding standard, except for fillet welds where the load demands are 1,000 lb or less per inch for each 1/8 inch of fillet weld.

**Replace the 1st through 3rd sentences in the 2nd paragraph of section 48-2.01D(2) with:**

04-19-13

Perform NDT on welded splices using UT or RT. Each weld and any repair made to a previously welded splice must be tested.

**Replace the 3rd paragraph of section 48-2.01D(2) with:**

04-19-13

For previously welded splices, perform and document all necessary testing and inspection required to certify the ability of the falsework members to sustain the design stresses.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

**49 PILING**

04-19-13

**Replace "sets" in the 1st paragraph of section 49-1.01C(2) with:**

04-19-13

copies

**Replace "set" in the 2nd paragraph of section 49-1.01C(2) with:**

04-19-13

copy

**Replace "Load Applied to Pile by Hydraulic Jack(s) Acting at One End of Test Beam(s) Anchored to the Pile" in the 5th paragraph of section 49-1.01D(2) with:**

07-20-12

"Tensile Load Applied by Hydraulic Jack(s) Acting Upward at One End of Test Beam(s)"

**Add to section 49-1.03:**

04-20-12

Dispose of drill cuttings under section 19-2.03B.

**Replace the 2nd paragraph of section 49-2.01D with:**

01-20-12

Furnish piling is measured along the longest side of the pile from the specified tip elevation shown to the plane of pile cutoff.

**Replace "sets" in the 1st paragraph of section 49-2.04A(3) with:**

04-19-13

copies

**Replace the 3rd and 4th paragraphs of section 49-2.04B(2) with:**

10-19-12

Piles in a corrosive environment must be steam or water cured under section 90-4.03.

If piles in a corrosive environment are steam cured, either:

1. Keep the piles continuously wet for at least 3 days. The 3 days includes the holding and steam curing periods.
2. Apply curing compound under section 90-1.03B(3) after steam curing.

**Add to section 49-3.01A:**

01-20-12

Concrete must comply with section 51.

**Replace the 1st paragraph of section 49-3.01C with:**

01-20-12

Except for CIDH concrete piles constructed under slurry, construct CIP concrete piles such that the excavation methods and the concrete placement procedures provide for placing the concrete against undisturbed material in a dry or dewatered hole.

**Replace "Reserved" in section 49-3.02A(2) with:**

01-20-12

**dry hole:**

1. Except for CIDH concrete piles specified as end bearing, a drilled hole that:
  - 1.1. Accumulates no more than 12 inches of water in the bottom of the drilled hole during a period of 1 hour without any pumping from the hole during the hour.
  - 1.2. Has no more than 3 inches of water in the bottom of the drilled hole immediately before placing concrete.
2. For CIDH concrete piles specified as end bearing, a drilled hole free of water without the use of pumps.

**Replace "Reserved" in section 49-3.02A(3)(a) with:**

01-20-12

If plastic spacers are proposed for use, submit the manufacturer's data and a sample of the plastic spacer. Allow 10 days for review.

**Replace item 5 in the list in the 1st paragraph of section 49-3.02A(3)(b) with:**

10-19-12

5. Methods and equipment for determining:
  - 5.1. Depth of concrete
  - 5.2. Theoretical volume of concrete to be placed, including the effects on volume if casings are withdrawn
  - 5.3. Actual volume of concrete placed

**Add to the list in the 1st paragraph of section 49-3.02A(3)(b):**

01-18-13

8. Drilling sequence and concrete placement plan.

**Replace item 2 in the list in the 1st paragraph of section 49-3.02A(3)(g) with:**

01-20-12

2. Be sealed and signed by an engineer who is registered as a civil engineer in the State. This requirement is waived for either of the following conditions:
  - 2.1. The proposed mitigation will be performed under the current Department-published version of *ADSC Standard Mitigation Plan 'A' - Basic Repair* without exception or modification.
  - 2.2. The Engineer determines that the rejected pile does not require mitigation due to structural, geotechnical, or corrosion concerns, and you elect to repair the pile using the current Department-published version of *ADSC Standard Mitigation Plan 'B' - Grouting Repair* without exception or modification.

**Replace item 1 in the list in the 1st paragraph of section 49-3.02A(4)(d)(ii) with:**

01-20-12

1. Inspection pipes must be schedule 40 PVC pipe complying with ASTM D 1785 with a nominal pipe size of 2 inches. Watertight PVC couplers complying with ASTM D 2466 are allowed to facilitate pipe lengths in excess of those commercially available. Log the location of the inspection pipe couplers with respect to the plane of pile cutoff.

**Add to section 49-3.02A(4)(d)(iv):**

01-20-12

If the Engineer determines it is not feasible to use one of ADSC's standard mitigation plans to mitigate the pile, schedule a meeting and meet with the Engineer before submitting a nonstandard mitigation plan.

The meeting attendees must include your representatives and the Engineer's representatives involved in the pile mitigation. The purpose of the meeting is to discuss the type of pile mitigation acceptable to the Department.

Provide the meeting facility. The Engineer conducts the meeting.

**Replace the 1st paragraph of section 49-3.02B(5) with:**

01-20-12

Grout used to backfill casings must comply with section 50-1.02C, except:

1. Grout must consist of cementitious material and water, and may contain an admixture if authorized. Cementitious material must comply with section 90-1.02B, except SCMs are not required. The minimum cementitious material content of the grout must not be less than 845 lb/cu yd of grout.
2. Aggregate must be used to extend the grout as follows:
  - 2.1. Aggregate must consist of at least 70 percent fine aggregate and approximately 30 percent pea gravel, by weight.
  - 2.2. Fine aggregate must comply with section 90-1.02C(3).
  - 2.3. Size of pea gravel must be such that 100 percent passes the 1/2-inch sieve, at least 90 percent passes the 3/8-inch sieve, and not more than 5 percent passes the no. 8 sieve.
3. California Test 541 is not required.
4. Grout is not required to pass through a sieve with a 0.07-inch maximum clear opening before being introduced into the grout pump.

**Replace section 49-3.02B(8) with:**

01-20-12

**49-3.02B(8) Spacers**

Spacers must comply with section 52-1.03D, except you may use plastic spacers.

Plastic spacers must:

1. Comply with sections 3.4 and 3.5 of the Concrete Reinforcing Steel Institute's *Manual of Standard Practice*
2. Have at least 25 percent of their gross plane area perforated to compensate for the difference in the coefficient of thermal expansion between the plastic and concrete
3. Be of commercial quality

**Add to section 49-3.02C(4):**

01-20-12

Unless otherwise shown, the bar reinforcing steel cage must have at least 3 inches of clear cover measured from the outside of the cage to the sides of the hole or casing.

Place spacers at least 5 inches clear from any inspection tubes.

Place plastic spacers around the circumference of the cage and at intervals along the length of the cage, as recommended by the manufacturer.

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## 50 PRESTRESSING CONCRETE

04-19-13

**Replace "sets" at each occurrence in the 2nd and 3rd paragraphs of section 50-1.01C(3) with:**

10-19-12

copies

**Replace the 3rd paragraph of section 50-1.01D(2) with:**

10-19-12

The Department may verify the prestressing force using the Department's load cells.

**Replace the 6th paragraph of section 50-1.01D(3) with:**

01-18-13

Jacking equipment must be calibrated as follows:

1. Each jack and its gage must be calibrated as a unit.
2. Each jack used to tension prestressing steel permanently anchored at 25 percent or more of its specified minimum ultimate tensile strength must be calibrated by METS within 1 year of use and after each repair. You must:
  - 2.1. Schedule the calibration of the jacking equipment with METS
  - 2.2. Verify that the jack and supporting systems are complete, with proper components, and are in good operating condition
  - 2.3. Mechanically calibrate the gages with a dead weight tester or other authorized means before calibration of the jacking equipment by METS
  - 2.4. Provide enough labor, equipment, and material to (1) install and support the jacking and calibration equipment and (2) remove the equipment after the calibration is complete
  - 2.5. Plot the calibration results
3. Each jack used to tension prestressing steel permanently anchored at less than 25 percent of its specified minimum ultimate tensile strength must be calibrated by an authorized laboratory within 6 months of use and after each repair.

**Replace "diameter" in item 9 in the list in the 1st paragraph of section 50-1.02D with:**

04-20-12

cross-sectional area

**Add to section 50-1.02:**

09-16-11

**50-1.02G Sheathing**

Sheathing for debonding prestressing strand must:

1. Be split or un-split flexible polymer plastic tubing
2. Have a minimum wall thickness of 0.025 inch
3. Have an inside diameter exceeding the maximum outside diameter of the strand by 0.025 to 0.14 inch

Split sheathing must overlap at least 3/8 inch.

Waterproofing tape used to seal the ends of the sheathing must be flexible adhesive tape.

The sheathing and waterproof tape must not react with the concrete, coating, or steel.

**Add to section 50-1.03B(1):**

01-20-12

After seating, the maximum tensile stress in the prestressing steel must not exceed 75 percent of the minimum ultimate tensile strength shown.

**Add to section 50-1.03B(2):**

09-16-11

**50-1.03B(2)(e) Debonding Prestressing Strands**

Where shown, debond prestressing strands by encasing the strands in plastic sheathing along the entire length shown and sealing the ends of the sheathing with waterproof tape.

Distribute the debonded strands symmetrically about the vertical centerline of the girder. The debonded lengths of pairs of strands must be equal.

Do not terminate debonding at any one cross section of the member for more than 40 percent of the debonded strands or 4 strands, whichever is greater.

Thoroughly seal the ends with waterproof tape to prevent the intrusion of water or cement paste before placing the concrete.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

**51 CONCRETE STRUCTURES**

04-19-13

**Replace the paragraphs of section 51-1.01A with:**

10-19-12

Section 51-1 includes general specifications for constructing concrete structures.

Earthwork for the following concrete structures must comply with section 19-3:

1. Sound wall footings
2. Sound wall pile caps
3. Culverts
4. Barrier slabs
5. Junction structures
6. Minor structures
7. Pipe culvert headwalls, endwalls, and wingwalls for a pipe with a diameter of 5 feet or greater

Falsework must comply with section 48-2.



Joints must comply with section 51-2.

Elastomeric bearing pads must comply with section 51-3.

Reinforcement for the following concrete structures must comply with section 52:

1. Sound wall footings
2. Sound wall pile caps
3. Barrier slabs
4. Junction structures
5. Minor structures
6. PC concrete members

You may use RSC for a concrete structure only where the specifications allow the use of RSC.

**Replace the heading of section 51-1.01D(4) with:**

04-19-13

**Testing Concrete Surfaces**

**Add to section 51-1.01D(4)(a):**

04-19-13

The Engineer tests POC deck surfaces for smoothness and crack intensity.

**Add to the list in the 1st paragraph of section 51-1.01D(4)(b):**

04-19-13

3. Completed deck surfaces, including ramps and landings of POCs

**Replace the 4th paragraph in section 51-1.01D(4)(b) with:**

04-19-13

Except for POCs, surface smoothness is tested using a bridge profilograph under California Test 547. Two profiles are obtained in each lane approximately 3 feet from the lane lines and 1 profile is obtained in each shoulder approximately 3 feet from the curb or rail face. Profiles are taken parallel to the direction of traffic.

**Add between the 5th and 6th paragraphs of section 51-1.01D(4)(b):**

04-19-13

POC deck surfaces must comply with the following smoothness requirements:

1. Surfaces between grade changes must not vary more than 0.02 foot from the lower edge of a 12-foot-long straightedge placed parallel to the centerline of the POC
2. Surface must not vary more than 0.01 foot from the lower edge of a 6-foot-long straightedge placed perpendicular to the centerline of the POC

**Add to section 51-1.01D(4)(d):**

04-19-13

The Engineer measures crack intensity of POC deck surfaces after curing, before prestressing, and before falsework release. Clean the surface for the Engineer to measure surface crack intensity.

In any 100 sq ft portion of a new POC deck surface, if there are more than 10 feet of cracks having a width at any point of over 0.02 inch, treat the deck with methacrylate resin under section 15-5.05. Treat the entire deck width between the curbs to 5 feet beyond where the furthest continuous crack emanating from the 100 sq ft section is 0.02 inch wide. Treat the deck surface before grinding.

**Add to section 51-1.03C(2)(c)(i):**

04-20-12

Permanent steel deck forms are only allowed where shown or if specified as an option in the special provisions.

**Replace the 3rd paragraph of section 51-1.03C(2)(c)(ii) with:**

04-20-12

Compute the physical design properties under AISI's *North American Specification for the Design of Cold-Formed Steel Structural Members*.

**Replace the 8th paragraph of section 51-1.03D(1) with:**

10-19-12

Except for concrete placed as pipe culvert headwalls and endwalls, slope paving and aprons, and concrete placed under water, consolidate concrete using high-frequency internal vibrators within 15 minutes of placing concrete in the forms. Do not attach vibrators to or hold them against forms or reinforcing steel. Do not displace reinforcement, ducts, or prestressing steel during vibrating.

**Add to section 51-1.03E(5):**

08-05-11

Drill the holes without damaging the adjacent concrete. If reinforcement is encountered during drilling before the specified depth is attained, notify the Engineer. Unless coring through the reinforcement is authorized, drill a new hole adjacent to the rejected hole to the depth shown.

**Add to section 51-1.03F(5)(a):**

04-19-13

For approach slabs, sleeper slabs, and other roadway surfaces of concrete structures, texture the roadway surface as specified for bridge deck surfaces in section 51-1.03F(5)(b).

**Replace "Reserved" in section 51-1.03F(5)(b) with:**

04-20-12

**51-1.03F(5)(b)(i) General**

Except for bridge widenings, texture the bridge deck surfaces longitudinally by grinding and grooving or by longitudinal tining.

10-19-12

For bridge widenings, texture the deck surface longitudinally by longitudinal tining.

04-20-12

In freeze-thaw areas, do not texture PCC surfaces of bridge decks.

**51-1.03F(5)(b)(ii) Grinding and Grooving**

When texturing the deck surface by grinding and grooving, place a 1/4 inch of sacrificial concrete cover on the bridge deck above the finished grade shown. Place items to be embedded in the concrete based on the final profile grade elevations shown. Construct joint seals after completing the grinding and grooving.

Before grinding and grooving, deck surfaces must comply with the smoothness and deck crack treatment requirements.

Grind and groove the deck surface as follows:

1. Grind the surface to within 18 inches of the toe of the barrier under section 42-3. Grinding must not reduce the concrete cover on reinforcing steel to less than 1-3/4 inches.
2. Groove the ground surfaces longitudinally under section 42-2. The grooves must be parallel to the centerline.

#### **51-1.03F(5)(b)(iii) Longitudinal Tining**

When texturing the deck surface by longitudinal tining, perform initial texturing with a burlap drag or broom device that produces striations parallel to the centerline. Perform final texturing with spring steel tines that produce grooves parallel with the centerline.

The tines must:

1. Be rectangular in cross section
2. Be from 3/32 to 1/8 inch wide on 3/4-inch centers
3. Have enough length, thickness, and resilience to form grooves approximately 3/16 inch deep

Construct grooves to within 6 inches of the layout line of the concrete barrier toe. Grooves must be from 1/8 to 3/16 inch deep and 3/16 inch wide after concrete has hardened.

For irregular areas and areas inaccessible to the grooving machine, you may hand construct grooves. Hand-constructed grooves must comply with the specifications for machine-constructed grooves.

Tining must not cause tearing of the deck surface or visible separation of coarse aggregate at the surface.

#### **Add to section 51-1.03F:**

04-19-13

#### **51-1.03F(6) Finishing Pedestrian Overcrossing Surfaces**

Construct deck surfaces, including ramps and landings of POCs to the grade and cross section shown. Surfaces must comply with the specified smoothness, surface texture, and surface crack requirements.

The Engineer sets deck elevation control points for your use in establishing the grade and cross section of the deck surface. The grade established by the deck elevation control points includes all camber allowances. Except for landings, elevation control points include the beginning and end of the ramp and will not be closer together than approximately 8 feet longitudinally and 4 feet transversely to the POC centerline. Landing elevation control points are at the beginning and the end of the landing.

Broom finish the deck surfaces of POCs. Apply the broom finish perpendicular to the path of travel. You may apply water mist to the surface immediately before brooming.

Clean any discolored concrete by abrasive blast cleaning or other authorized methods.

#### **Replace the paragraphs of section 51-1.04 with:**

10-19-12

If concrete involved in bridge work is not designated by type and is not otherwise paid for under a separate bid item, the concrete is paid for as structural concrete, bridge.

The payment quantity for structural concrete includes the volume in the concrete occupied by bar reinforcing steel, structural steel, prestressing steel materials, and piling.

The payment quantity for seal course concrete is the actual volume of seal course concrete placed except the payment quantity must not exceed the volume of concrete contained between vertical planes 1 foot outside the neat lines of the seal course shown. The Department does not adjust the unit price for an increase or decrease in the seal course concrete quantity.

Structural concrete for pier columns is measured as follows:

1. Horizontal limits are vertical planes at the neat lines of the pier column shown.
2. Bottom limit is the bottom of the foundation excavation in the completed work.

3. Upper limit is the top of the pier column concrete shown.

The payment quantity for drill and bond dowel is determined from the number and depths of the holes shown.

**Replace section 51-2.01B(2) with:**

04-19-13

**51-2.01B(2) Reserved**

04-19-13

**Delete the 4th paragraph of section 51-2.01C.**

**Replace "SSPC-QP 3" in the 1st paragraph of section 51-2.02A(2) with:**

10-19-12

AISC-420-10/SSPC-QP 3

**Replace the 2nd and 3rd paragraphs of section 51-2.02B(3)(b) with:**

04-20-12

Concrete saws for cutting grooves in the concrete must have diamond blades with a minimum thickness of 3/16 inch. Cut both sides of the groove simultaneously for a minimum 1st pass depth of 2 inches. The completed groove must have:

1. Top width within 1/8 inch of the width shown or ordered
2. Bottom width not varying from the top width by more than 1/16 inch for each 2 inches of depth
3. Uniform width and depth

Cutting grooves in existing decks includes cutting any conflicting reinforcing steel.

**Replace "sets" in the 1st and 2nd paragraphs of section 51-2.02D(1)(c)(ii) with:**

04-19-13

copies

**Replace "set" in the 7th paragraph of section 51-2.02D(1)(c)(ii) with:**

04-19-13

copy

**Add to the 1st paragraph of section 51-2.02D(3):**

04-19-13

POC deck surfaces must comply with section 51-1.03F(6) before placing and anchoring joint seal assemblies.

**Replace "sets" in the 2nd paragraph of section 51-2.02E(1)(c) with:**

04-19-13

copies

**Replace "set" in the 6th paragraph of section 51-2.02E(1)(c) with:**

04-19-13

copy

**Replace the 2nd paragraph of section 51-2.02E(1)(e) with:**

08-05-11

Except for components in contact with the tires, the design loading must be the AASHTO LRFD Bridge Design Specifications Design Truck with 100 percent dynamic load allowance. Each component in contact with the tires must support a minimum of 80 percent of the AASHTO LRFD Bridge Design Specifications Design Truck with 100 percent dynamic load allowance. The tire contact area must be 10 inches measured normal to the longitudinal assembly axis by 20 inches wide. The assembly must provide a smooth-riding joint without slapping of components or tire rumble.

**Replace "sets" in the 1st and 2nd paragraphs of section 51-2.02F(1)(c) with:**

04-19-13

copies

**Add between the 1st and 2nd paragraphs of section 51-4.01A:**

10-19-12

Prestressing concrete members must comply with section 50.

**Delete the 2nd paragraph of section 51-4.01A.**

04-20-12

**Replace the 3rd paragraph of section 51-4.01C(2) with:**

04-20-12

For segmental or spliced-girder construction, shop drawings must include the following additional information:

1. Details showing construction joints or closure joints
2. Arrangement of bar reinforcing steel, prestressing tendons, and pressure-grouting pipe
3. Materials and methods for making closures
4. Construction joint keys and surface treatment
5. Other requested information

For segmental girder construction, shop drawings must include concrete form and casting details.

**Replace "sets" in the 1st paragraph of section 51-4.01C(3) with:**

04-19-13

copies

**Delete the 1st and 2nd paragraphs of section 51-4.02A.**

10-19-12

**Replace the 3rd paragraph of section 51-4.02B(2) with:**

04-20-12

For segmental or spliced-girder construction, materials for construction joints or closure joints at exterior girders must match the color and texture of the adjoining concrete.

**Add to section 51-4.02B(2):**

04-20-12

At spliced-girder closure joints:

1. If shear keys are not shown, the vertical surfaces of the girder segment ends must be given a coarse texture as specified for the top surface of PC members.
2. Post-tensioning ducts must extend out of the vertical surface of the girder segment closure end sufficiently to facilitate splicing of the duct.

For spliced girders, pretension strand extending from the closure end of the girder segment to be embedded in the closure joint must be free of mortar, oil, dirt, excessive mill scale and scabby rust, and other coatings that would destroy or reduce the bond.

**Add to section 51-4.03B:**

04-20-12

The specifications for prestressing force distribution and sequencing of stressing in the post-tensioning activity in 50-1.03B(2)(a) do not apply if post-tensioning of spliced girders before starting deck construction is described. The composite deck-girder structure must be post-tensioned in a subsequent stage.

Temporary spliced-girder supports must comply with the specifications for falsework in section 48-2.

Before post-tensioning of spliced girders, remove the forms at CIP concrete closures and intermediate diaphragms to allow inspection for concrete consolidation.

**Add between the 1st and 2nd paragraphs of section 51-7.01A:**

10-19-12

Minor structures include:

1. Pipe culvert headwalls and endwalls for a pipe with a diameter less than 5 feet
2. Drainage inlets
3. Other structures described as minor structures

**Delete the 4th paragraph of section 51-7.01A.**

10-19-12

**Replace the 1st and 2nd paragraphs of section 51-7.01B with:**

Concrete must comply with the specifications for minor concrete.

10-19-12

**Add to section 51:**

**51-8-51-15 RESERVED**

10-19-12

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**52 REINFORCEMENT**

01-18-13

**Add to section 52-1.01A:**

07-20-12

Splicing of bar reinforcement must comply with section 52-6.

**Replace the 1st and 2nd paragraphs of section 52-1.02B with:**

10-19-12

Reinforcing bars must be deformed bars complying with ASTM A 706/A 706M, Grade 60, except you may use:

1. Deformed bars complying with ASTM A 615/A 615M, Grade 60, in:
  - 1.1. Junction structures
  - 1.2. Sign and signal foundations
  - 1.3. Minor structures
  - 1.4. Concrete crib members
  - 1.5. Mechanically-stabilized-embankment concrete panels
  - 1.6. Masonry block sound walls
2. Deformed or plain bars complying with ASTM A 615/A 615M, Grade 40 or 60, in:
  - 2.1. Slope and channel paving
  - 2.2. Concrete barriers Type 50 and 60
3. Plain bars for spiral or hoop reinforcement in structures and concrete piles

**Add to the list in the 3rd paragraph of section 52-1.02B:**

04-20-12

9. Shear reinforcement stirrups in PC girders

**Replace the 6th paragraph of section 52-6.01D(4)(a) with:**

01-18-13

Before performing service splice or ultimate butt splice testing, perform total slip testing on the service splice or ultimate butt splice test samples under section 52-6.01D(4)(b).

**Replace section 52-6.02D with:**

10-21-11

**52-6.02D Ultimate Butt Splice Requirements**

When tested under California Test 670, ultimate butt splice test samples must demonstrate necking as either of the following:

1. For "Necking (Option I)," the test sample must rupture in the reinforcing bar outside of the affected zone and show visible necking.
2. For "Necking (Option II)," the largest measured strain must be at least:
  - 2.1. Six percent for no. 11 and larger bars
  - 2.2. Nine percent for no. 10 and smaller bars

**Replace the 2nd and 3rd paragraphs of section 52-6.03B with:**

01-18-13

Do not splice the following by lapping:

1. No. 14 bars
2. No. 18 bars
3. Hoops
4. Reinforcing bars where you cannot provide a minimum clear distance of 2 inches between the splice and the nearest adjacent bar

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

## 54 WATERPROOFING

04-20-12

**Add between "be" and "3/8 inch" in the 3rd paragraph of section 54-4.02C:**

04-20-12

at least

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## 55 STEEL STRUCTURES

04-19-13

**Replace "sets" at each occurrence in the 1st paragraph of section 55-1.01C(2) with:**

04-19-13

copies

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## 56 SIGNS

04-19-13

**Delete item 2 in the list in the 4th paragraph of section 56-3.01A.**

07-20-12

**Replace "sets" in the 1st paragraph of section 56-3.01C(2) with:**

04-19-13

copies

**Delete the 7th paragraph of section 56-3.02K(2).**

07-20-12

**Delete item 4 in the list in the 1st paragraph of section 56-3.02M(1).**

07-20-12

**Replace item 5 in the list in the 1st paragraph of section 56-3.02M(1) with:**

04-19-13

Tubular

**Add between the 1st and 2nd paragraphs of section 56-3.02M(1):**

04-19-13

Clean and paint all ferrous metal parts of tubular sign structures after galvanizing, including the areas to be covered by sign panels. Do not paint sign structures other than tubular type unless specified in the special provisions.

**Replace the headings and paragraphs in section 56-3.02M(3) with:**

04-19-13

Where specified, clean and paint sign structures under section 59-5.



**Delete "and box beam-closed truss" in the 2nd paragraph of section 56-3.02M(3)(a).**

07-20-12

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## 57 WOOD AND PLASTIC LUMBER STRUCTURES

04-19-13

**Replace "51-2.01C(3)" in the 1st paragraph of section 57-2.01C(3)(a) with:**

10-19-12

57-2.01C(3)

**Replace "sets" at each occurrence in the 1st paragraph of section 57-3.01C with:**

04-19-13

copies

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## 58 SOUND WALLS

04-19-13

**Delete the 3rd paragraph of section 58-1.01.**

10-19-12

**Replace the 1st paragraph of section 58-2.01D(5)(a) with:**

08-05-11

You must employ a special inspector and an authorized laboratory to perform Level 1 inspections and structural tests of masonry to verify the masonry construction complies with section 1704, "Special Inspections," and section 2105, "Quality Assurance," of the 2007 CBC.

**Delete the 1st paragraph of section 58-2.02F.**

10-19-12

**Replace "sets" at each occurrence in the 1st paragraph of section 58-4.01C with:**

04-19-13

copies

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## 59 PAINTING

04-19-13

**Replace "SSPC-SP 10" at each occurrence in section 59 with:**

10-19-12

SSPC-SP 10/NACE no. 2

**Replace "SSPC-SP 6" at each occurrence in section 59 with:**

10-19-12

SSPC-SP 6/NACE no. 3

**Replace "SSPC-CS 23.00" at each occurrence in section 59 with:**

10-19-12

SSPC-CS 23.00/AWS C 2.23M/NACE no. 12

**Replace "SSPC-QP 3 or AISC SPE, Certification P-1 Enclosed" in item 3 in the list in the 1st paragraph of section 59-2.01D(1) with:**

10-19-12

AISC-420-10/SSPC-QP 3 (Enclosed Shop)

**Replace the paragraphs in section 59-2.03A with:**

10-19-12

Clean and paint all exposed structural steel and other metal surfaces.

You must provide enclosures for cleaning and painting structural steel. Cleaning and painting of new structural steel must be performed in an Enclosed Shop as defined in AISC-420-10/SSPC-QP 3. Maintain atmospheric conditions inside enclosures within specified limits.

Except for blast cleaning within closed buildings, perform blast cleaning and painting during daylight hours.

**Replace item 1 in the list in the 2nd paragraph of section 59-2.03C(1) with:**

10-19-12

1. Apply a stripe coat of undercoat paint on all edges, corners, seams, crevices, interior angles, junctions of joining members, weld lines, and similar surface irregularities. The stripe coat must completely hide the surface being covered. If spot blast cleaning portions of the bridge, apply the stripe coat of undercoat paint before each undercoat and follow with the undercoat as soon as practical. If removing all existing paint from the bridge, apply the undercoat first as soon as practical and follow with the stripe coat of undercoat paint for each undercoat.

**Replace the heading of section 59-2.03C(2) with:**

04-19-13

**Zinc Coating System**

**Add to section 59-2.03C(2)(a):**

04-19-13

Coatings for new structural steel and connections between new and existing structural steel must comply with the requirements shown in the following table:

### Zinc Coating System

Description	Coating	Dry film thickness (mils)
All new surfaces:		
Undercoat	Inorganic zinc primer, AASHTO M 300 Type I or II	4–8
Finish coat <sup>a</sup>	Exterior grade latex <sup>b</sup> , 2 coats	2 minimum each coat, 4–8 total
Total thickness, all coats		8–14
Connections to existing structural steel: <sup>c</sup>		
Undercoat	Inorganic zinc primer, AASHTO M 300 Type I or II	4–8
Finish coat <sup>a</sup>	Exterior grade latex <sup>b</sup> , 2 coats	2 minimum each coat, 4–8 total
Total thickness, all coats		8–14

<sup>a</sup>If no finish coats are described, a final coat of inorganic zinc primer is required.

<sup>b</sup>Exterior grade latex must comply with section 91-2.02 unless otherwise specified.

<sup>c</sup>Includes the following locations:

1. New and existing contact surfaces
2. Existing member surfaces under new HS bolt heads, nuts, or washers
3. Bare surfaces of existing steel after trimming, cutting, drilling, or reaming
4. Areas within a 4-inch radius from the point of application of heat for welding or flame cutting

### Add to section 59-2.03C:

04-19-13

#### 59-2.03C(3) Moisture-Cured Polyurethane Coating System

Reserved

#### 59-2.03C(4) State Specification Paint Waterborne Coating System

##### 59-2.03C(4)(a) General

The State Specification PWB coating system for existing structural steel must comply with the requirements shown in the following table:

### State Specification PWB Coating System

Surface	Description	State Specification PWB Coating	Dry film thickness (mils)
Surfaces cleaned to bare metal <sup>a</sup> :	1st undercoat	145	2–3
	2nd undercoat	146	2–3
	1st finish coat	171	1.5–3
	2nd finish coat	172	1.5–3
	Total thickness, all coats	--	7–12
Existing painted surfaces to be topcoated:	Undercoat	146	2–3
	1st finish coat	171	1.5–3
	2nd finish coat	172	1.5–3
	Total thickness, new coats	--	5–9

<sup>a</sup>Includes locations of spot blast cleaning

##### 59-2.03C(4)(b) Finish Coats

Pressure rinse undercoated surfaces to receive finish coats. Perform pressure rinsing no sooner than 72 hours after the final application of undercoat.

The 1st finish coat must be applied within 48 hours of pressure rinsing.

Apply the 1st finish coat in 2 applications. The 1st application consists of a spray-applied mist application. Apply the 2nd application after the mist application has dried to a set-to-touch condition as determined using the procedure in section 7 of ASTM D 1640.

Apply the 2nd finish coat after the 1st finish coat has dried 12 hours unless authorized. You may apply the 2nd finish coat in a single application.

**Add to section 59-5.01:**

04-19-13

Where specified, prepare and paint sign structures under sections 59-2 and 59-3.

Instead of submitting proof of the certification complying with SSPC-QP 1, you may submit documentation with the painting quality work plan showing compliance with the requirements in section 3 of SSPC-QP 1.

Instead of submitting proof of the certification complying with SSPC-QP 2, you may submit documentation with the painting quality work plan showing compliance with the requirements in sections 4.2 through 4.4 of SSPC-QP 2, Category A.

Instead of submitting proof of the certification complying with AISC-420-10/SSPC-QP 3 (Enclosed Shop), you may submit documentation with the painting quality work plan showing compliance with the requirements in sections 5 through 18 of AISC-420-10/SSPC-QP3.

**Replace the paragraphs of section 59-5.03 with:**

04-19-13

**59-5.03A General**

You may prepare and paint sign structures before or after erection. After erection, repair damaged paint to the satisfaction of the Engineer.

The total dry film thickness of finish coats on contact surfaces of galvanized HS bolted connections (1) must be from 1 to 4 mils and (2) may be applied in 1 application.

**59-5.03B Undercoating of Ungalvanized Surfaces**

Blast-cleaned surfaces must receive a single undercoat consisting of an inorganic zinc coating as specified in AASHTO M 300, Type I or Type II, except:

1. The first 2 sentences of section 5.6 do not apply
2. Section 5.6.1 does not apply

If you propose to use a coating that is not on the Authorized Material List, submit the required documentation specified in section 5.6 of AASHTO M 300. Allow 30 days for the Engineer's review.

**59-5.03C Testing of Inorganic Zinc Coating**

Perform adhesion and hardness testing no sooner than 72 hours after application of the single undercoat of inorganic zinc coating.

**59-5.03D Finish Coating**

The exposed area of inorganic zinc coating must receive a minimum of 2 finish coats of exterior grade latex paint.

The 1st finish coat color must match no. 24558 of FED-STD-595. The 2nd finish coat color must match no. 24491 of FED-STD-595. The total dry film thickness of the applications of the 2nd finish coat must be not less than 2 mils.

**Replace "solider" in the 5th paragraph of section 59-9.03 with:**

04-19-13

soldier

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## **DIVISION VII DRAINAGE**

### **62 ALTERNATIVE CULVERTS**

10-19-12

**Add to the end of section 62-1.01:**

10-19-12

Alternative culverts include concrete collars and concrete tees and reinforcement for connecting new pipe to existing or new facilities. Concrete for the collars and tees must be minor concrete. Reinforcement for the concrete collars or tee connections must comply with section 52.

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### **64 PLASTIC PIPE**

10-19-12

**Replace the 2nd paragraph of section 64-1.01A with:**

10-19-12

Plastic pipe includes all necessary elbows, wyes, tees, other branches, fittings, coupling systems, concrete collars or tees, and reinforcement.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

### **65 CONCRETE PIPE**

10-19-12

**Replace the 2nd paragraph of section 65-1.01 with:**

10-19-12

Concrete pipe includes all necessary elbows, wyes, tees, other branches, concrete collars or tees, and reinforcement.

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## **70 MISCELLANEOUS DRAINAGE FACILITIES**

01-18-13

**Replace section 70-5.02A(2) with:**

01-20-12

#### **70-5.02A(2) Plastic Flared End Sections**

Plastic flared end sections must comply with ASTM D 3350.

**Replace the 2nd, 3rd, and 4th paragraphs of section 70-7.02B with:**

01-18-13

Before shipping, the exterior surfaces of the casing must be cleaned, primed, and coated to comply with ANSI/AWWA C213 or ANSI/AWWA C214.

Wrapping tape for repairing damaged coating and wrapping field joints and fittings must be a pressure-sensitive PVC or polyethylene tape with a minimum thickness of 50 mils, 2 inches wide.

## 01-18-13

1. Before wrapping, thoroughly clean and prime the pipe casing, joints, and fittings under the tape manufacturer's instructions.
2. Wrap the tape tightly with 1/2 uniform lap, free from wrinkles and voids to provide not less than a 100-mil thickness.
3. Wrapping at joints must extend at least 6 inches over adjacent pipe casing coverings. Apply tension such that the tape will conform closely to contours of the joint.

[illegible]

01-18-13

01-20-12

1/2 T	1/4 T	Light	Facing	Cobble
-------	-------	-------	--------	--------

01-20-12

1/2 T	1/4 T	Light	Facing	Cobble
-------	-------	-------	--------	--------

## 01-18-13

01-18-13

Construct and finish minor concrete slope paving under section 51-1.

[illegible]

04-19-13

04-19-13

Submit at least 5 copies of product data to OSD, Documents Unit. Each copy must be bound together and include an index stating equipment names, manufacturers, and model numbers. Two copies will be returned. Notify the Engineer of the submittal. Include in the notification the date and contents of the submittal.

**Replace the 1st sentence of the 1st paragraph in section 74-2.01D(2) with:**

01-20-12

Drainage pumps must be factory certified under ANSI/HI 14.6.

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## **75 MISCELLANEOUS METAL**

04-19-13

**Add between 2nd and 3rd paragraphs of section 75-1.03A:**

04-19-13

Fabricate expansion joint armor from steel plates, angles, or other structural shapes. Shape the armor to the section of the concrete deck and match-mark it in the shop. Bevel the unbolted end of the checkered plate at 45 degrees. Straighten warped sections of expansion joint armor before placing. Secure the expansion joint armor in the correct position during concrete placement.

**Replace "SSPC-QP 3" in the 3rd paragraph of section 75-1.03E(4) with:**

10-19-12

AISC-420-10/SSPC-QP3

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**Replace section 78 with:**

07-20-12

## **78 INCIDENTAL CONSTRUCTION**

07-20-12

### **78-1 GENERAL**

Section 78 includes specifications for incidental bid items that are not closely associated with other sections.

### **78-2-78-50 RESERVED**

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## **80 FENCES**

10-19-12

**Add to section 80-2.02D:**

10-19-12

Vertical stays must:

1. Comply with ASTM A641
2. Be 12-1/2 gage
3. Have a Class 3 zinc coating

**Replace item 1 in the list in section 80-2.02E with:**

10-19-12

Comply with ASTM A 116, Type Z, Grade 60, Class 1

**Add after "galvanized wire" in the 1st paragraph of section 80-2.02F:**

10-19-12

complying with ASTM A 641

**Replace the 3rd and 4th paragraphs of section 80-2.02F with:**

10-19-12

Each staple used to fasten barbed wire and wire mesh fabric to wood posts must:

1. Comply with ASTM F 1667
2. Be at least 1-3/4 inches long
3. Be manufactured from 9-gage galvanized wire

Wire ties used to fasten barbed wire and wire mesh to metal posts must be at least 11-gage galvanized wire complying with ASTM F 626. Clips and hog rings used for metal posts must be at least 9-gage galvanized wire complying with ASTM F 626.

**Replace the 8th through 14th paragraphs of section 80-2.03 with:**

10-19-12

Attach the wire mesh and barbed wire to each post.

Securely fasten tension wires to wood posts. Make a single or double loop around each post at each attachment point and staple the wire to the post. Use wire ties, hog rings, or wire clips to fasten the wires to the metal posts.

Connect each wood brace to its adjacent post with a 3/8 by 4-inch steel dowel. Twist the tension wires until the installation is rigid.

Stretch barbed wire and wire mesh fabric and fasten to each wood or steel end, corner, or gate post. Apply tension according to the manufacturer's instructions using a mechanical stretcher or other device designed for such use. If no tension is specified by the manufacturer, use 250 pounds for the required tension. Evenly distribute the pull over the longitudinal wires in the wire mesh such that no more than 50 percent of the original depth of the tension curves is removed. Do not use a motorized vehicle, truck, or tractor to stretch the wire.

Attach barbed wire and wire mesh fabric to the private-property side of posts. On curved alignments, place the wire mesh and barbed wire on the face of the post against which the normal pull of the wire mesh and wire will be exerted. Terminate the wire mesh and barbed wire at each end, corner, pull, and gate post in the new fence line. Attach wire mesh and barbed wire to each wood or steel end, corner, pull, or gate post by wrapping each horizontal strand around the post and tying it back on itself with at least 4 tightly-wound wraps.

At line posts, fasten the wire mesh to the post at the top and bottom and at intermediate points not exceeding 10 inches apart. Fasten each line of barbed wire to each line post. Use wire ties or clips to fasten the wires to metal posts under the post manufacturer's instructions. Drive staples crosswise with the grain of the wood and pointed slightly downward. Drive staples just short of actual contact with the wires to allow free longitudinal movement of those wires and to prevent damage to the wire's protective coating. Secure all wires to posts to maintain horizontal alignment.

Splices in barbed wire and wire mesh are allowed provided there are no more than 2 splices per 50 feet of fence. Use commercially-available galvanized mechanical wire splices or a wire splice created by tying off wire. Install mechanical wire splices with a tool designed for that purpose under the manufacturer's instructions. Tie off the wire as follows:

1. Carry the ends of each wire 3 inches past the tied-off knot location and wrap around the wire for at least 6 turns in opposite directions.
2. Remove the splice tool and close the space by pulling the end of the wires together.
3. Cut the unused ends of the wire close and neat.



**Add to "≤ 6" in the table in the 4th paragraph of section 80-3.02B:**

10-19-12

feet

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## **DIVISION IX TRAFFIC CONTROL FACILITIES**

### **83 RAILINGS AND BARRIERS**

10-19-12

**Replace "80-2.02" in the 2nd paragraph of section 83-1.02E with:**

10-19-12

80-3.02B

**Add to section 83-2.02D(1):**

10-21-11

For a concrete barrier transition:

1. Remove portions of the existing concrete barrier where shown under section 15-3
2. Roughen the contact surface of the existing concrete barrier
3. Drill and bond dowels into the existing concrete barrier under section 51-1

**Add to section 83-2.02:**

10-19-12

**83-2.02H–83-2.02M Reserved**

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## **84 TRAFFIC STRIPES AND PAVEMENT MARKINGS**

01-20-12

**Replace the 1st paragraph in section 84-2.04 with:**

01-20-12

A double extruded thermoplastic traffic stripe consisting of two 4-inch wide yellow stripes is measured as 2 traffic stripes.

A double sprayable thermoplastic traffic stripe consisting of two 4-inch wide yellow stripes is measured as 1 traffic stripe.

**Add to section 84:**

01-20-12

**84-6 THERMOPLASTIC TRAFFIC STRIPES AND PAVEMENT MARKINGS WITH ENHANCED WET NIGHT VISIBILITY**

Reserved

**84-7–84-10 RESERVED**

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## 86 ELECTRICAL SYSTEMS

10-19-12

Replace section 86-2.06 with:

01-20-12

### 86-2.06 PULL BOXES

#### 86-2.06A General

##### 86-2.06A(1) Cover Marking

Marking must be clearly defined, uniform in depth, and parallel to either the long or short sides of the cover.

Marking letters must be 1 to 3 inches high.

Before galvanizing steel or cast iron cover, apply marking by one of the following methods:

1. Use cast iron strip at least 1/4 inch thick with letters raised a minimum of 1/16 inch. Fasten strip to cover with 1/4-inch flathead stainless steel machine bolts and nuts. Peen bolts after tightening.
2. Use sheet steel strip at least 0.027 inch thick with letters raised a minimum of 1/16 inch. Fasten strip to cover by spot welding, tack welding, or brazing, with 1/4-inch stainless steel rivets or 1/4-inch roundhead stainless steel machine bolts and nuts. Peen bolts after tightening.
3. Bead weld the letters on cover such that the letters are raised a minimum of 3/32 inch.

##### 86-2.06A(2) Installation and Use

Space pull boxes no more than 200 feet apart. You may install additional pull boxes to facilitate the work.

You may use a larger standard size pull box than that shown on the plans or specified.

A pull box in ground or sidewalk area must be installed as follows:

1. Embed bottom of the pull box in crushed rock.
2. Place a layer of roofing paper on the crushed rock.
3. Place grout over the layer of roofing paper. Grout must be 0.50 to 1 inch thick and sloped toward the drain hole.
4. Make a 1-inch drain hole in the center of the pull box through the grout and roofing paper.
5. Place grout between the pull box and the pull box extension, and around conduits.

The top of the pull box must be flush with the surrounding grade or the top of an adjacent curb, except in unpaved areas where the pull box is not immediately adjacent to and protected by a concrete foundation, pole, or other protective construction. Place the pull box 1-1/4 inches above the surrounding grade. Where practical, place a pull box shown in the vicinity of curbs or adjacent to a standard on the side of the foundation facing away from traffic. If a pull box is installed in a sidewalk area, adjust the depth of the pull box so that the top of the pull box is flush with the sidewalk.

Reconstruct the sump of an existing pull box if disturbed by your activities. Remove old grout and replace with new if the sump was grouted.

#### 86-2.06B Non-Traffic-Rated Pull Boxes

Reserved

#### 86-2.06C Traffic Pull Boxes

Traffic pull box and cover must comply with ASTM C857, "Standard Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures," for HS20-44 loading. You must be able to place the load anywhere on the box and cover for 1 minute without causing cracks or permanent deformations.

Frame must be anchored to the box with 1/4 by 2-1/4 inch concrete anchors. Four concrete anchors must be included for No. 3-1/2(T) pull box; one placed in each corner. Six concrete anchors must be included for No. 5(T) and No. 6(T) pull boxes; one placed in each corner and one near the middle of each of the longer sides.

Nuts must be zinc-plated carbon steel, vibration resistant, and have a wedge ramp at the root of the thread.

After installation of traffic pull box, install the steel cover and keep it bolted down when your activities are not in progress at the pull box. When the steel cover is placed for the final time, the cover and Z bar frame must be cleaned of debris and tightened securely.

Steel cover must be countersunk approximately 1/4 inch to accommodate the bolt head. When tightened, the bolt head must not exceed more than 1/8 inch above the top of the cover.

Concrete placed around and under traffic pull boxes must be minor concrete.

**Replace "project" in the 3rd paragraph of section 86-2.11A with:**

10-19-12

work

**Replace "Contract" in item 2 in the list in the 11th paragraph of section 86-2.11A with:**

10-19-12

work

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## 88 GEOSYNTHETICS

01-18-13

**Replace the row for hydraulic bursting strength in the table in the 2nd paragraph of section 88-1.02B with:**

10-19-12

Puncture strength, lb min	ASTM D 6241	310
Trapezoid tearing strength, lb min	ASTM D 4533	56

**Replace the 3rd paragraph in section 88-1.02C with:**

10-19-12

Geocomposite wall drain must be from 0.25 to 2 inches thick.

**Replace the value for permittivity of woven fabric in the table in the 1st paragraph of section 88-1.02E with:**

01-20-12

0.05

**Replace the value for apparent size opening of nonwoven fabric in the table in the 1st paragraph of section 88-1.02E with:**

01-20-12

0.012

Replace the table in the 1st paragraph of section 88-1.02G with:

01-20-12

**Sediment Filter Bag**

Property	Test	Values	
		Woven	Nonwoven
Grab breaking load, lb, 1-inch grip min, in each direction	ASTM D 4632	200	250
Apparent elongation, percent min, in each direction	ASTM D 4632	10	50
Water flow rate, gal per minute/sq ft min and max average roll value	ASTM D 4491	100-200	75-200
Permittivity, sec <sup>-1</sup> min	ASTM D 4491	1.0	1.0
Apparent opening size, inches max average roll value	ASTM D 4751	0.023	0.012
Ultraviolet resistance, % min retained grab breaking load, 500 hr.	ASTM D 4355	70	70

Replace the table in the 1st paragraph of section 88-1.02H with:

01-20-12

**Temporary Cover**

Property	Test	Values	
		Woven	Nonwoven
Grab breaking load, lb, 1-inch grip min, in each direction	ASTM D 4632	200	200
Apparent elongation, percent min, in each direction	ASTM D 4632	15	50
Water flow rate, gal per minute/sq ft min and max average roll value	ASTM D 4491	4-10	80-120
Permittivity, sec <sup>-1</sup> min	ASTM D 4491	0.05	1.0
Apparent opening size, inches max average roll value	ASTM D 4751	0.023	0.012
Ultraviolet resistance, % min retained grab breaking load, 500 hr.	ASTM D 4355	70	70

Replace section 88-1.02P with:

01-18-13

**88-1.02P Biaxial Geogrid**

Geosynthetics used for biaxial geogrid must be a punched and drawn polypropylene material formed into an integrally formed biaxial grid. When tested under the referenced test methods, properties of biaxial geogrid must have the values shown in the following table:

### Biaxial Geogrid

Property	Test	Value
Aperture size, inch <sup>a</sup> min and max	Calipered	0.8-1.3 x 1.0-1.6
Rib thickness, inch min	Calipered	0.04
Junction thickness, inch min	Calipered	0.150
Tensile strength, 2% strain, lb/ft <sup>a</sup> min	ASTM D 6637	410 x 620
Tensile strength at ultimate, lb/ft <sup>a</sup> min	ASTM D 6637	1,310 x 1,970
Ultraviolet resistance, percent min retained tensile strength, 500 hours	ASTM D 4355	100
Junction strength, lb/ft <sup>a</sup> min	ASTM D 7737	1,220 x 1,830
Overall flexural rigidity, mg-cm min	ASTM D 7748	750,000
Torsional rigidity at 20 cm-kg, mm-kg/deg <sup>b</sup> min	GRI:GG9	0.65

<sup>a</sup>Machine direction x cross direction

<sup>b</sup>Geosynthetic Research Institute, Test Method GG9, *Torsional Behavior of Bidirectional Geogrids When Subjected to In-Plane Rotation*

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## DIVISION X MATERIALS

### 90 CONCRETE

08-05-11

**Replace the 3rd paragraph of section 90-1.01C(7) with:**

08-05-11

Submit weighmaster certificates in printed form or, if authorized, in electronic media. Present electronic media in a tab-delimited format on a CD or DVD. Captured data for the ingredients represented by each batch must be line feed carriage return and one line separate record with sufficient fields for the specified data.

**Replace the 3rd paragraph of section 90-3.01C(5) with:**

08-05-11

Production data must be input by hand into a pre-printed form or captured and printed by the proportioning device. Present electronic media containing recorded production data in a tab-delimited format on a CD or DVD. Each capture of production data must be followed by a line feed carriage return with sufficient fields for the specified data.

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## 91 PAINT

10-19-12

Add to section 91-2:

10-19-12

### 91-2.03 MOISTURE-CURED POLYURETHANE COATING

Reserved

Replace "saint" in the 1st paragraph of section 91-4.05 with:

10-19-12

paint

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

## 92 ASPHALTS

01-20-12

Replace the row for dynamic shear for original binder in the table in the 1st paragraph of section 92-1.02B with:

01-20-12

Dynamic shear, Test temperature at 10 rad/s, °C min G*/sin(delta), kPa max G*/sin(delta), kPa	T 315	58 1.00 2.00	64 1.00 2.00	64 1.00 2.00	64 1.00 2.00	70 1.00 2.00
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